

FIGURE 1. Temporal Characteristic Delta Value Layout

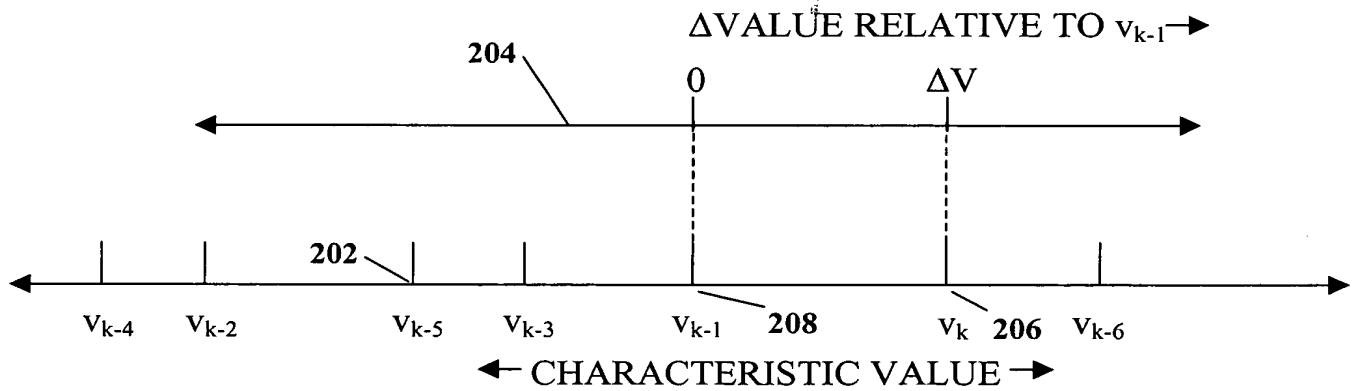


FIGURE 2. Non-temporal Characteristic Delta Value Layout

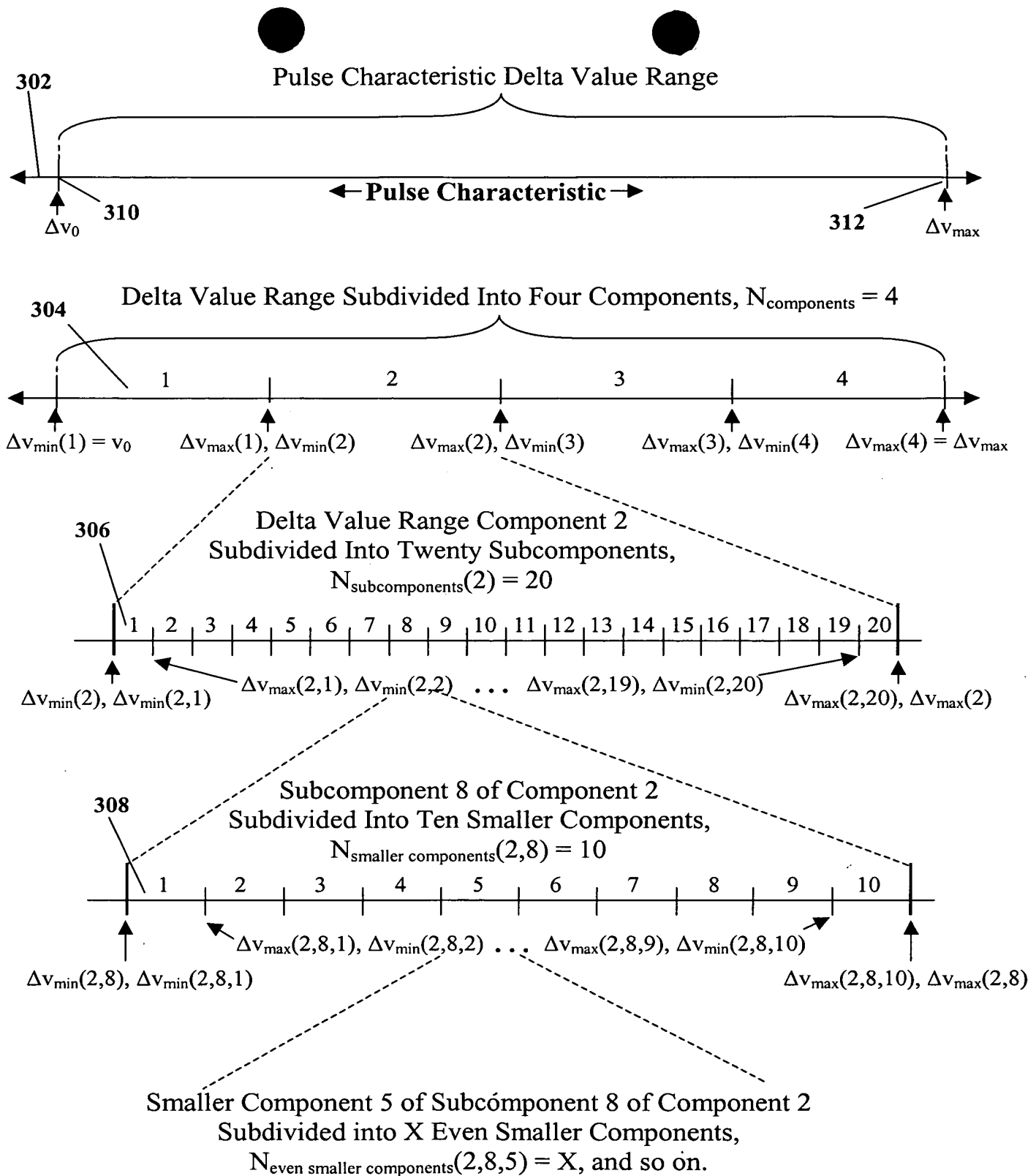


FIGURE 3. Characteristic Delta Value Range Layout Parameters

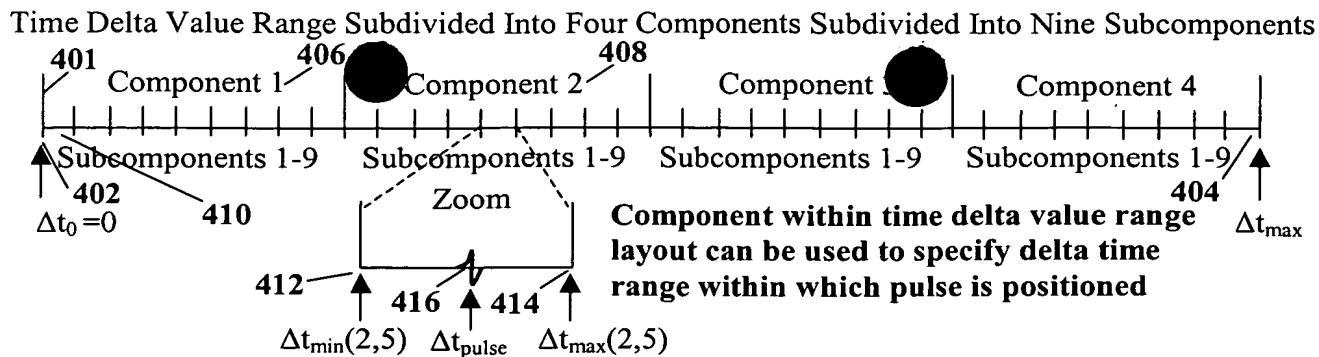


FIGURE 4a.

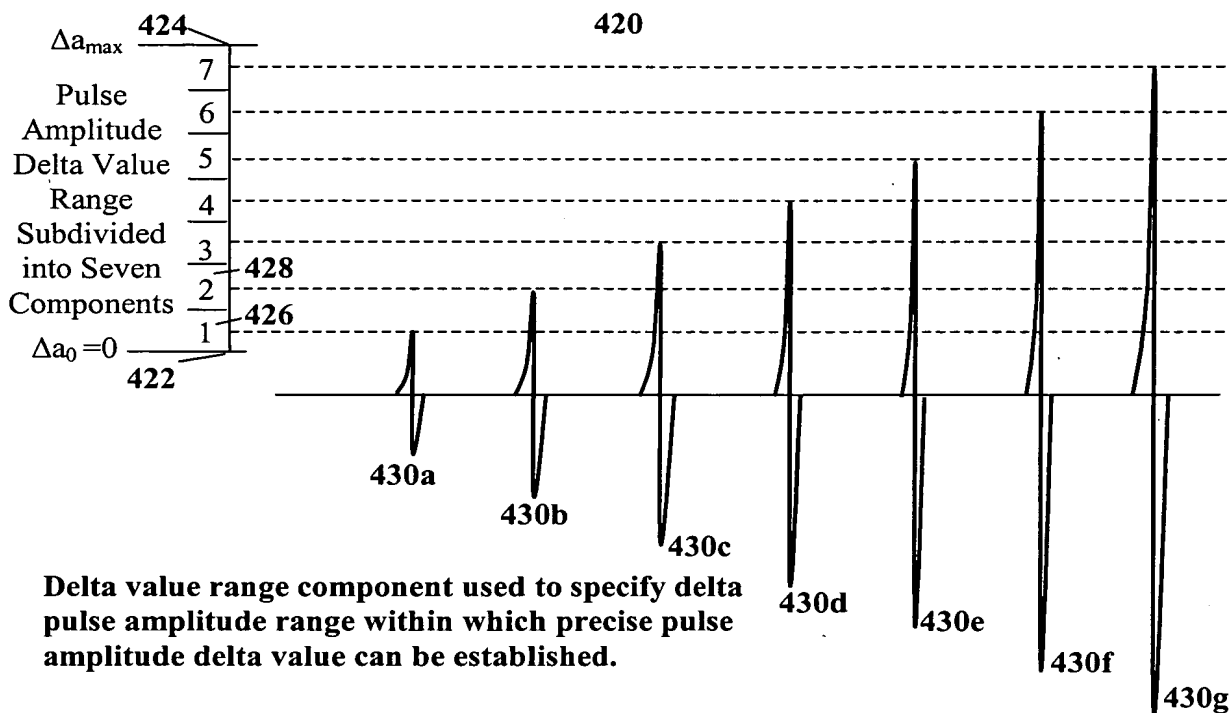


FIGURE 4b

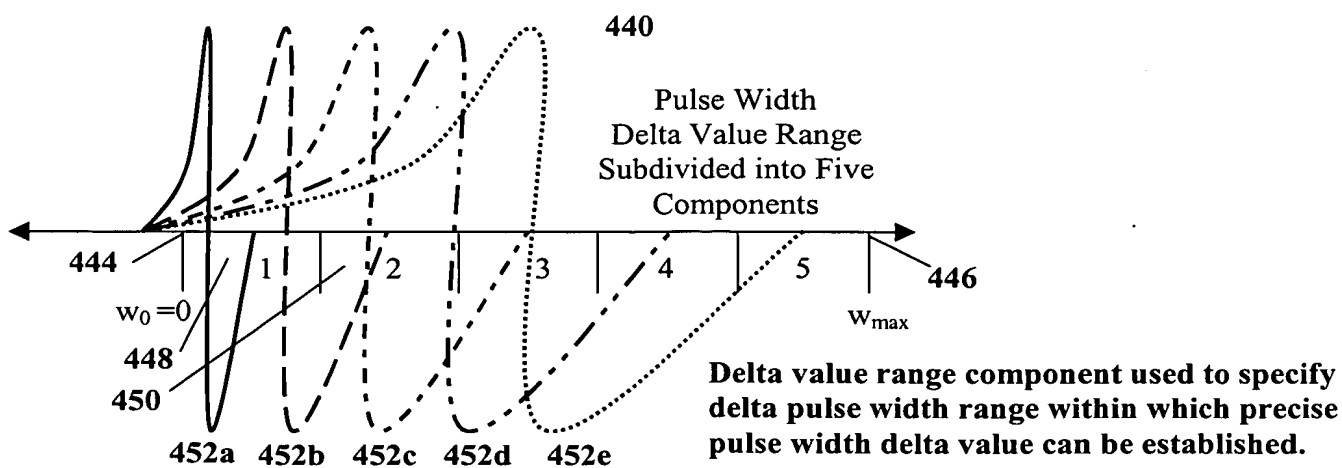


FIGURE 4c

Non-Allowable Regions Within Delta Value Range Layout

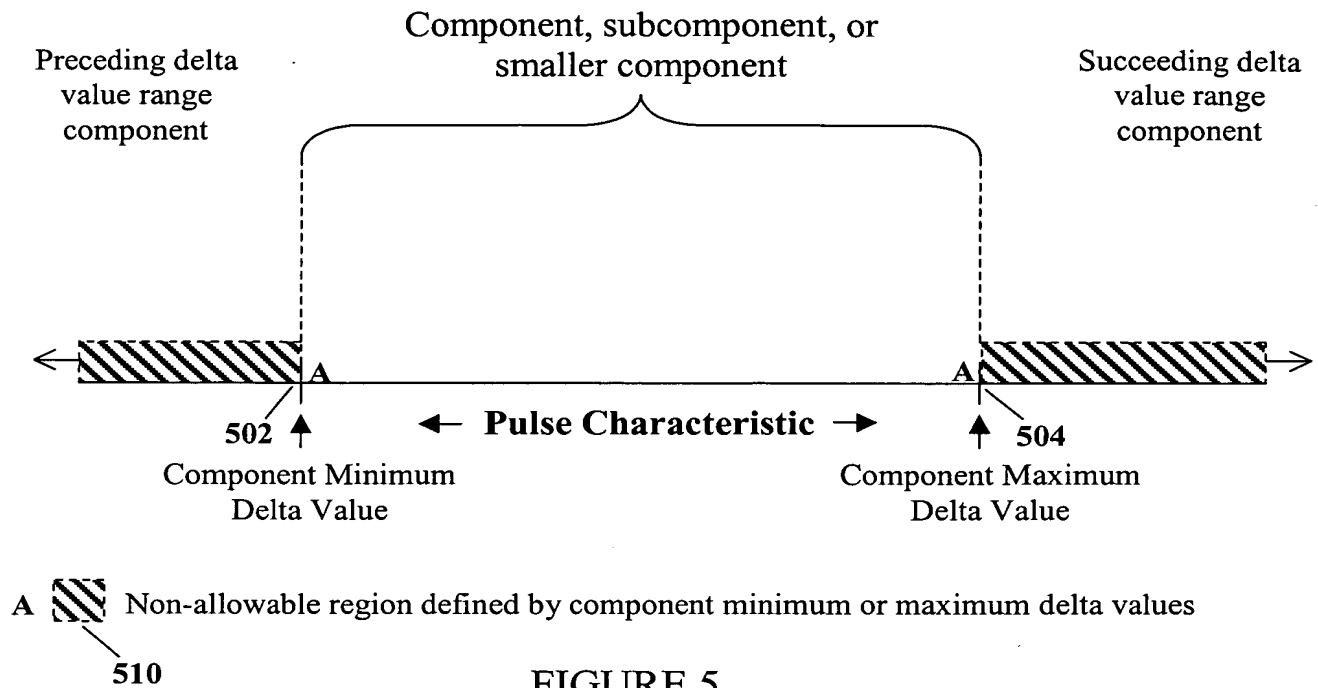


FIGURE 5.

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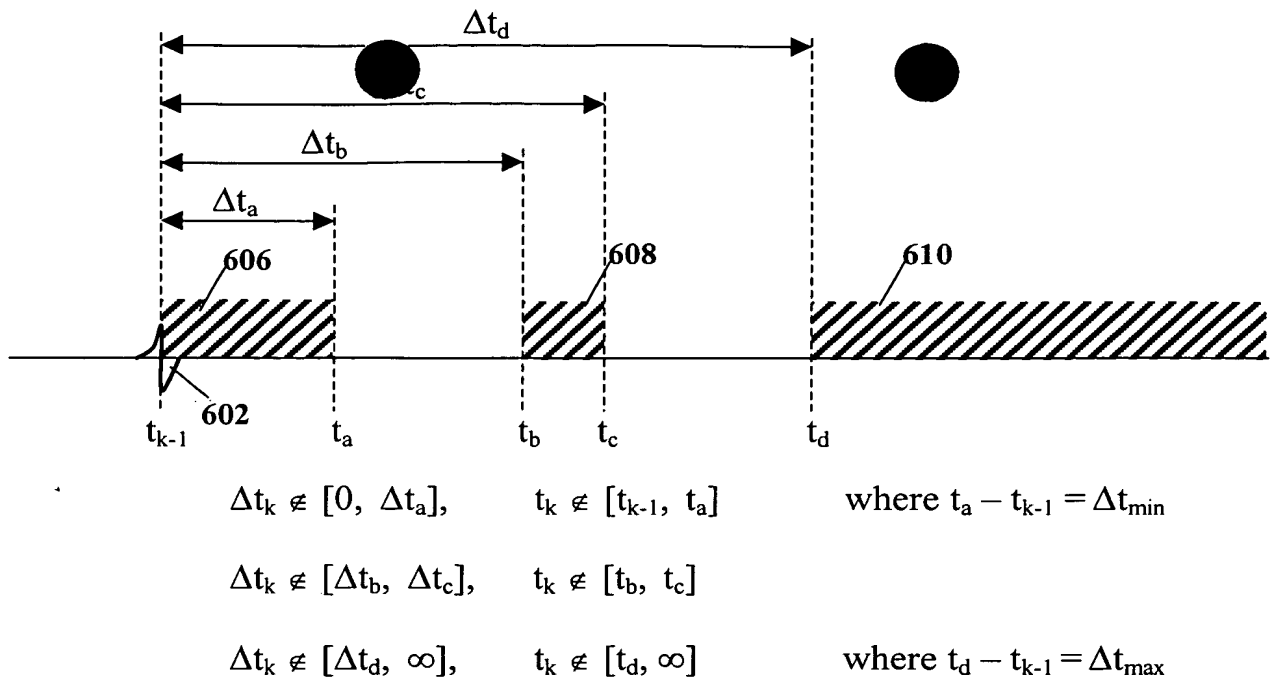


FIGURE 6a. Non-allowable Regions Relative to Preceding Pulse Position

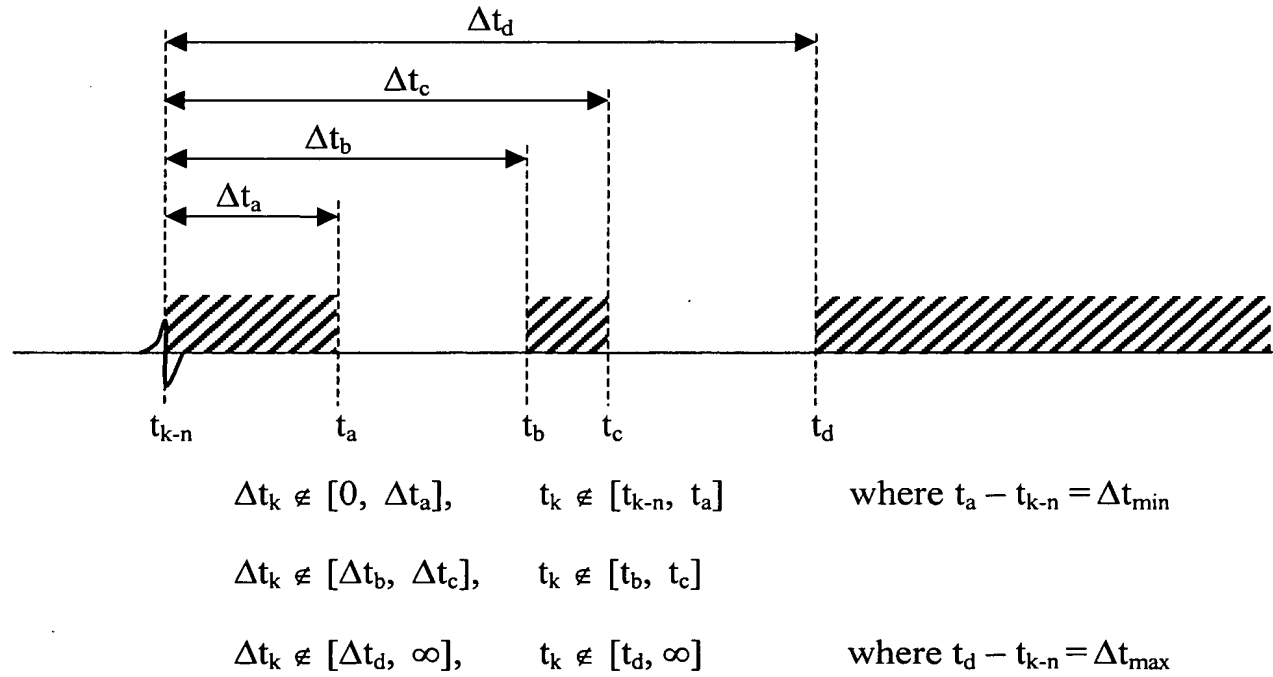
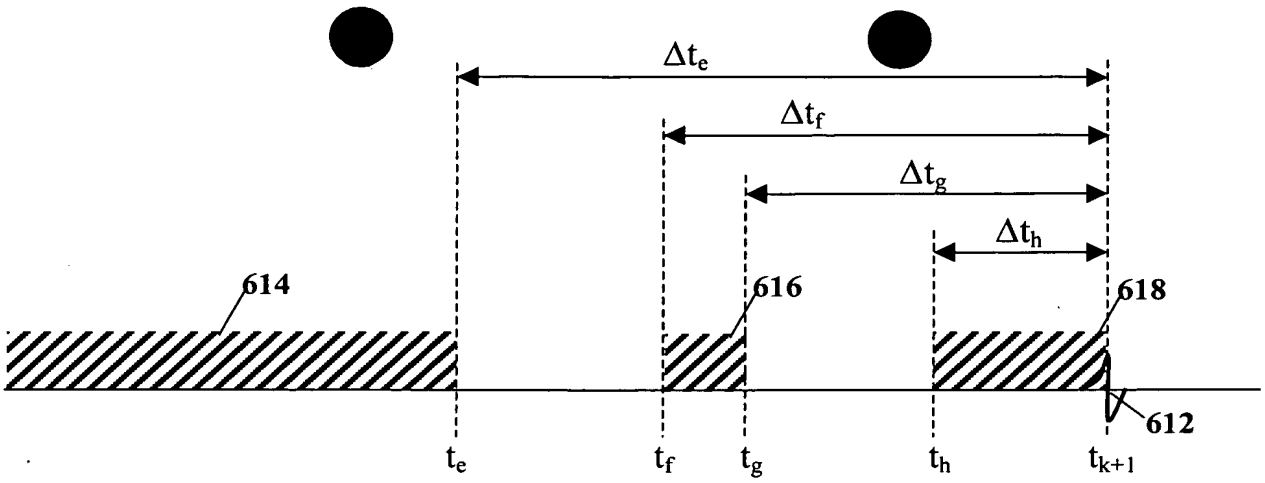
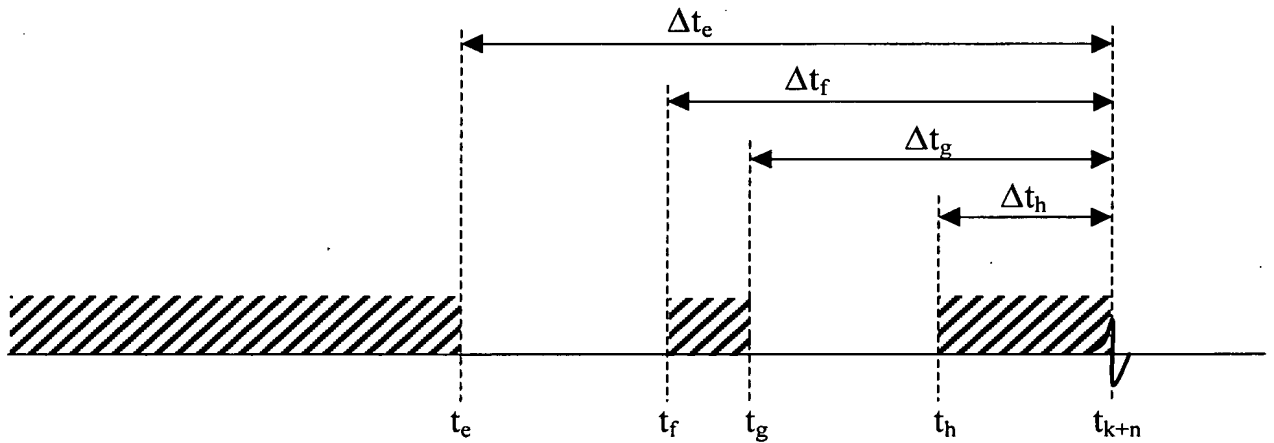


FIGURE 6b. Non-allowable Regions Relative to Any Preceding Pulse Position



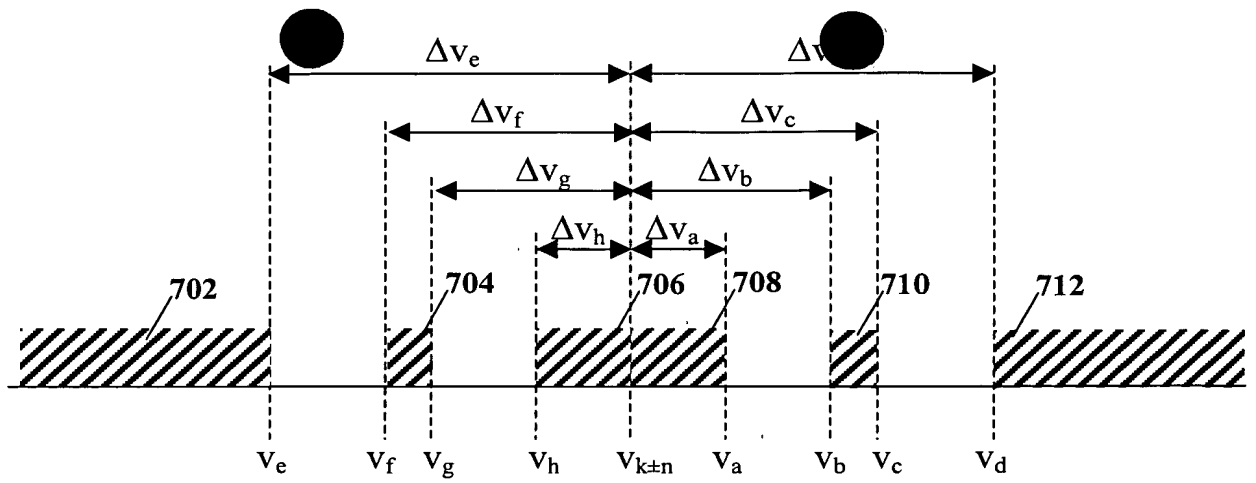
$$\begin{aligned} \Delta t_k &\notin [-\Delta t_h, 0], & t_k &\notin [t_h, t_{k+1}] & \text{where } t_{k+1} - t_h = \Delta t_{\min} \\ \Delta t_k &\notin [-\Delta t_f, -\Delta t_g], & t_k &\notin [t_f, t_g] \\ \Delta t_k &\notin [-\infty, -\Delta t_e], & t_k &\notin [-\infty, t_e] & \text{where } t_{k+1} - t_e = \Delta t_{\max} \end{aligned}$$

FIGURE 6c. Non-allowable Regions Relative to Succeeding Pulse Position



$$\begin{aligned} \Delta t_k &\notin [-\Delta t_h, 0], & t_k &\notin [t_h, t_{k+n}] & \text{where } t_{k+n} - t_h = \Delta t_{\min} \\ \Delta t_k &\notin [-\Delta t_f, -\Delta t_g], & t_k &\notin [t_f, t_g] \\ \Delta t_k &\notin [-\infty, -\Delta t_e], & t_k &\notin [-\infty, t_e] & \text{where } t_{k+n} - t_e = \Delta t_{\max} \end{aligned}$$

FIGURE 6d. Non-allowable Regions Relative to Any Succeeding Pulse Position



$$\begin{aligned}
 \Delta v_k &\notin [-\infty, -\Delta v_e], & v_k &\notin [-\infty, v_e] & \text{where } v_{k\pm n} - v_e = \Delta v_{\max} \\
 \Delta v_k &\notin [-\Delta v_f, -\Delta v_g], & v_k &\notin [v_f, v_g] \\
 \Delta v_k &\notin [-\Delta v_h, 0], & v_k &\notin [v_h, v_{k\pm n}] & \text{where } v_{k\pm n} - v_h = \Delta v_{\min} \\
 \Delta v_k &\notin [0, \Delta v_a], & v_k &\notin [v_{k\pm n}, v_a] & \text{where } v_a - v_{k\pm n} = \Delta v_{\min} \\
 \Delta v_k &\notin [\Delta v_b, \Delta v_c], & v_k &\notin [v_b, v_c] \\
 \Delta v_k &\notin [\Delta v_d, \infty], & v_k &\notin [v_d, \infty] & \text{where } v_d - v_{k\pm n} = \Delta v_{\max}
 \end{aligned}$$

FIGURE 7. Non-allowable Regions Relative to Characteristic Value of Any Other Pulse

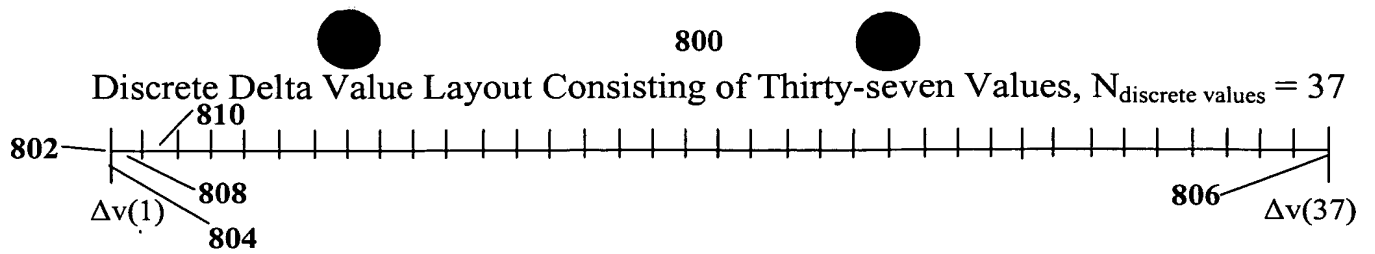


FIGURE 8a.

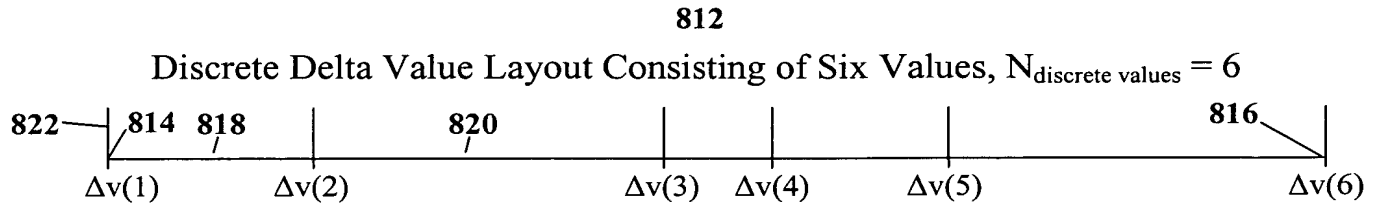


FIGURE 8b.

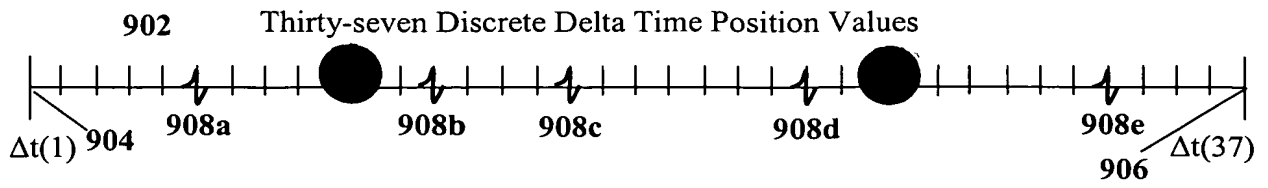


FIGURE 9a.

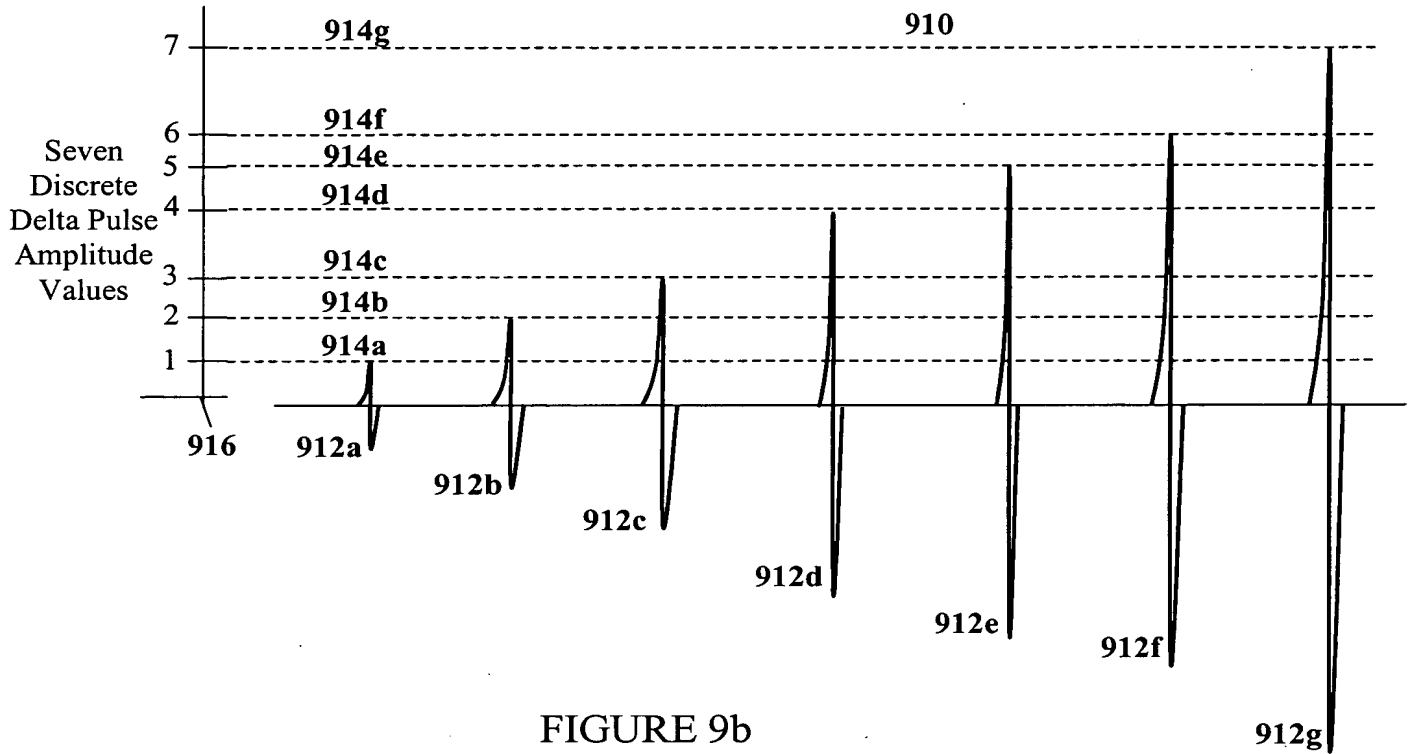


FIGURE 9b

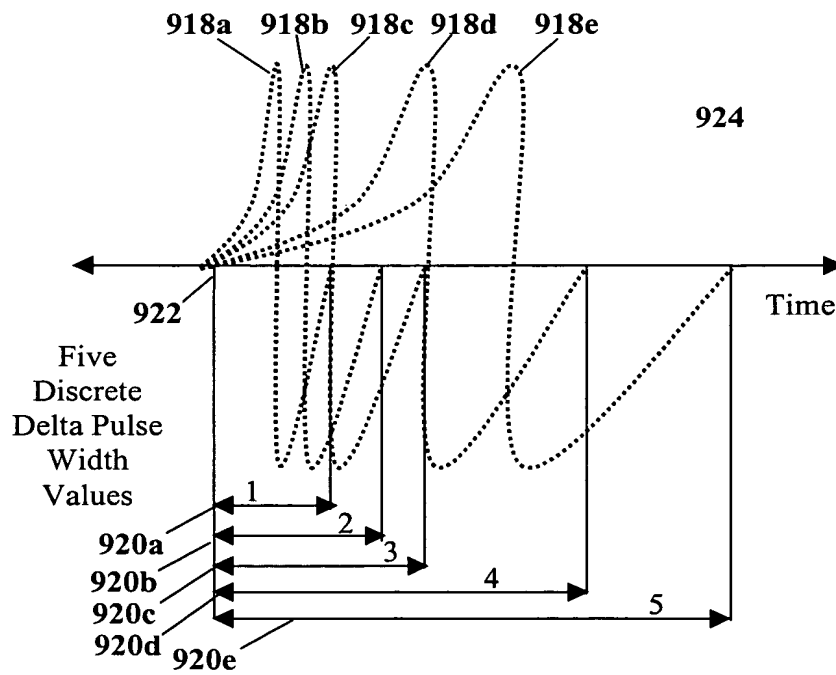


FIGURE 9c

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Combined Delta Value Range/Discrete Delta Value Layout Consisting of Four Delta Value Range Components Subdivided Into Nine Subcomponents Containing 27 Discrete Delta Values Each

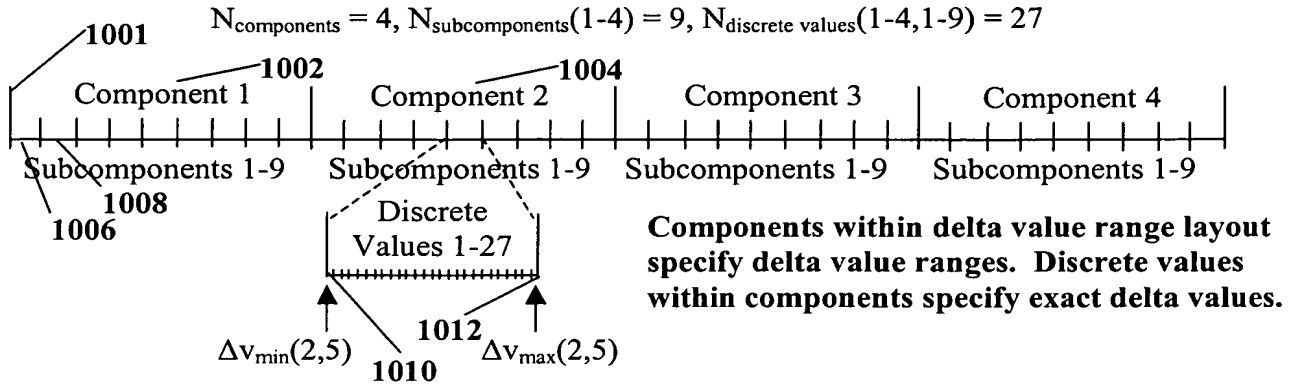


FIGURE 10.

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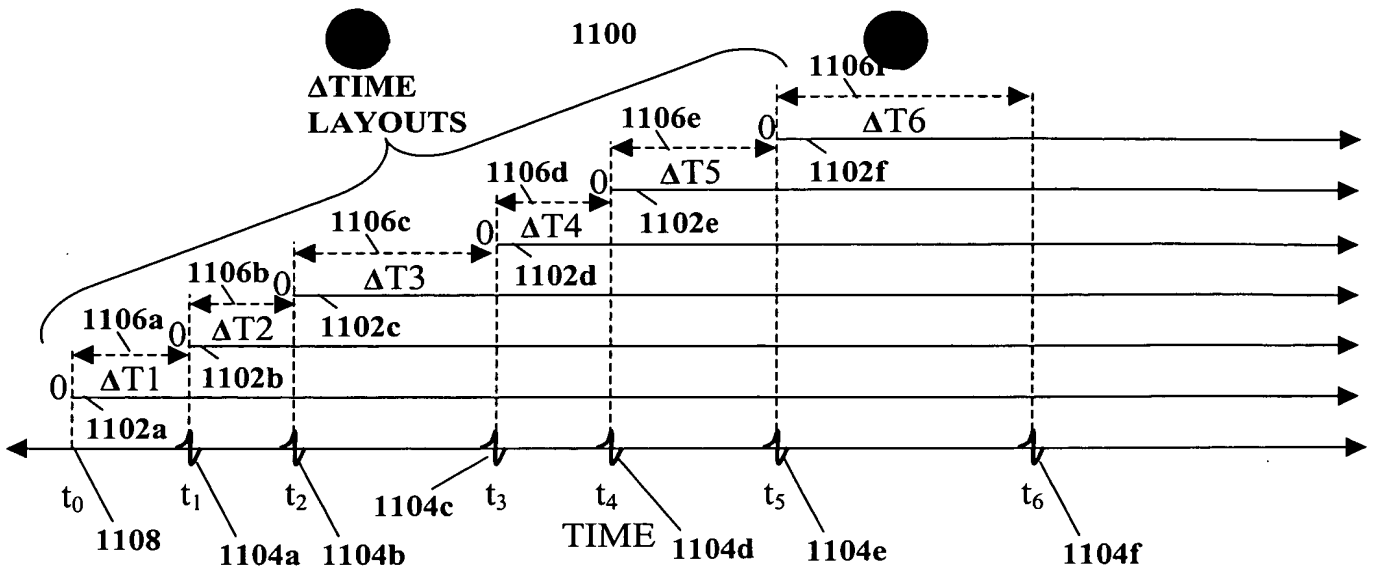


FIGURE 11a. Single Code Element Per Reference Temporal Delta Coding

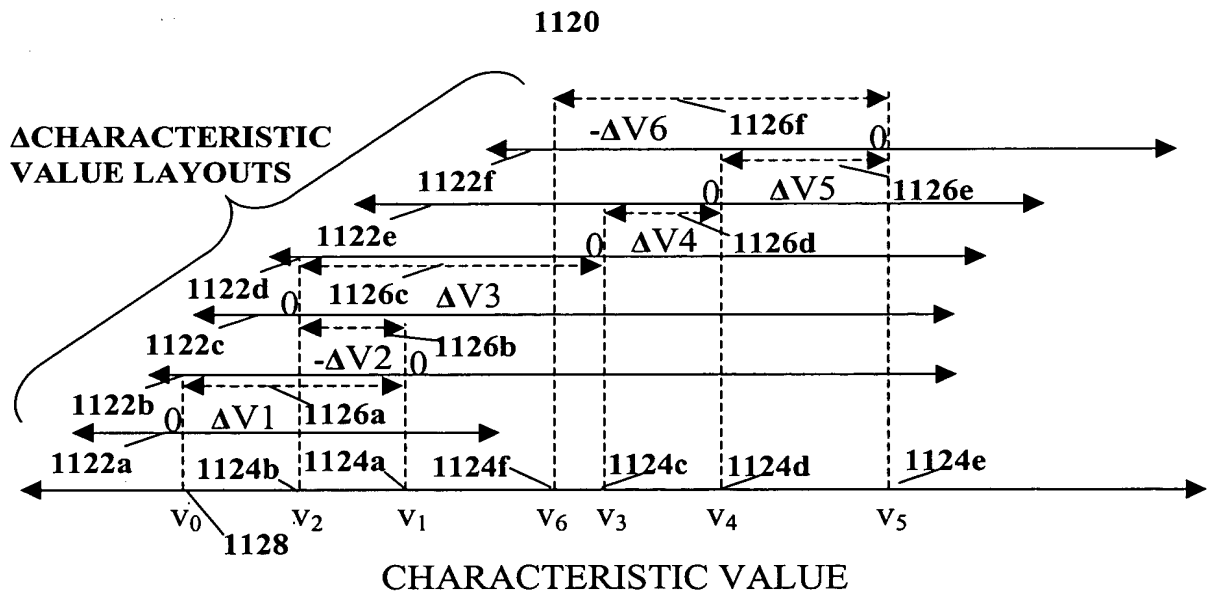


FIGURE 11b. Single Code Element Per Reference Non-temporal Delta Coding

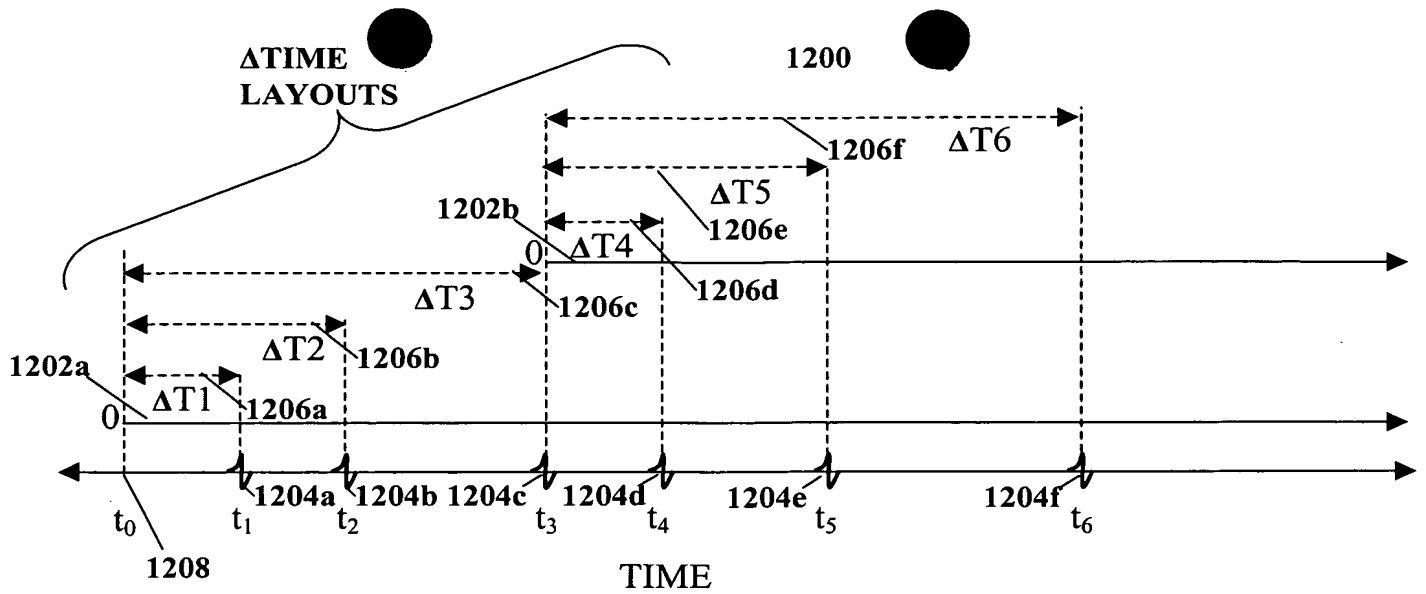


FIGURE 12a. Multiple (3) Code Elements Per Reference Temporal Delta Coding

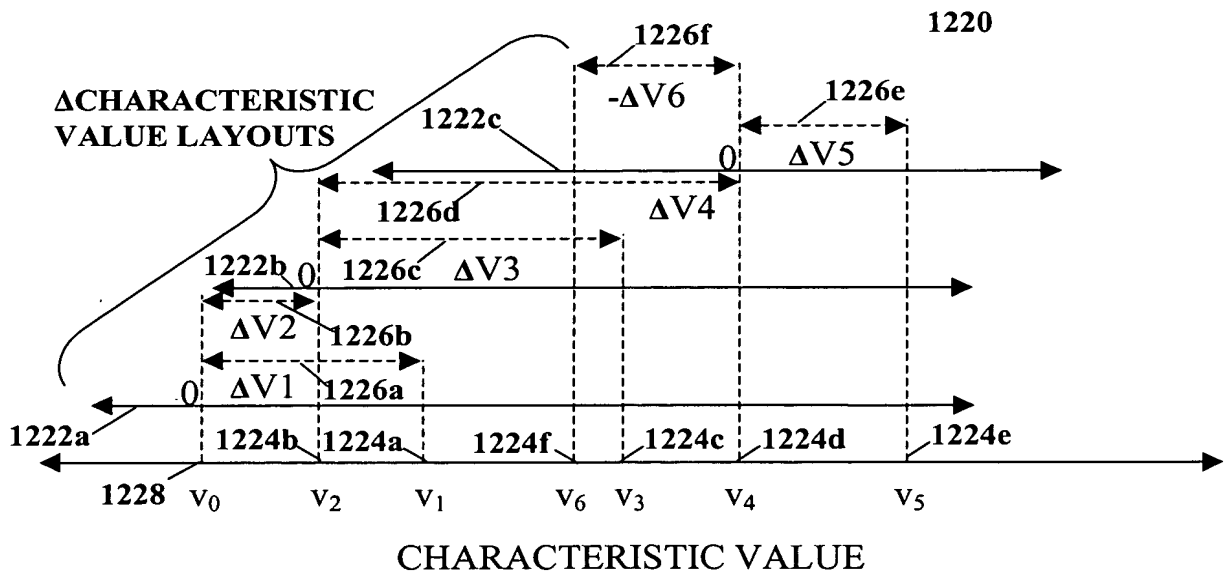


FIGURE 12b. Multiple (2) Code Elements Per Reference Non-temporal Delta Coding

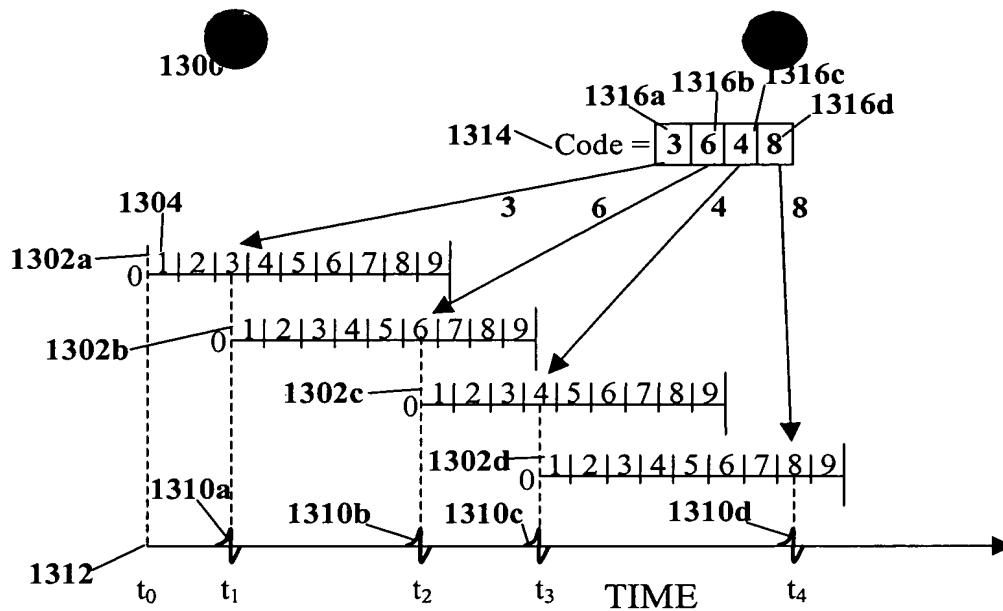


FIGURE 13a

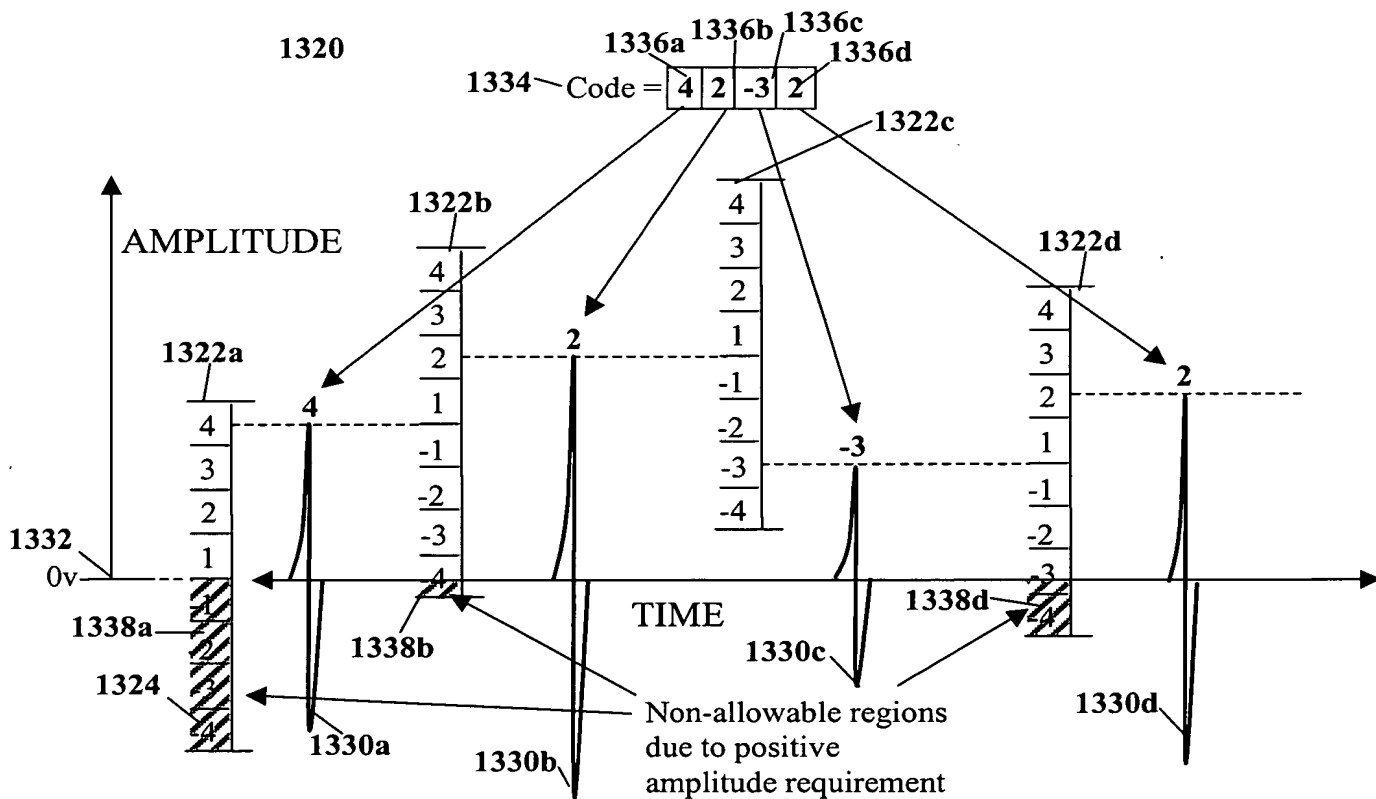


FIGURE 13b

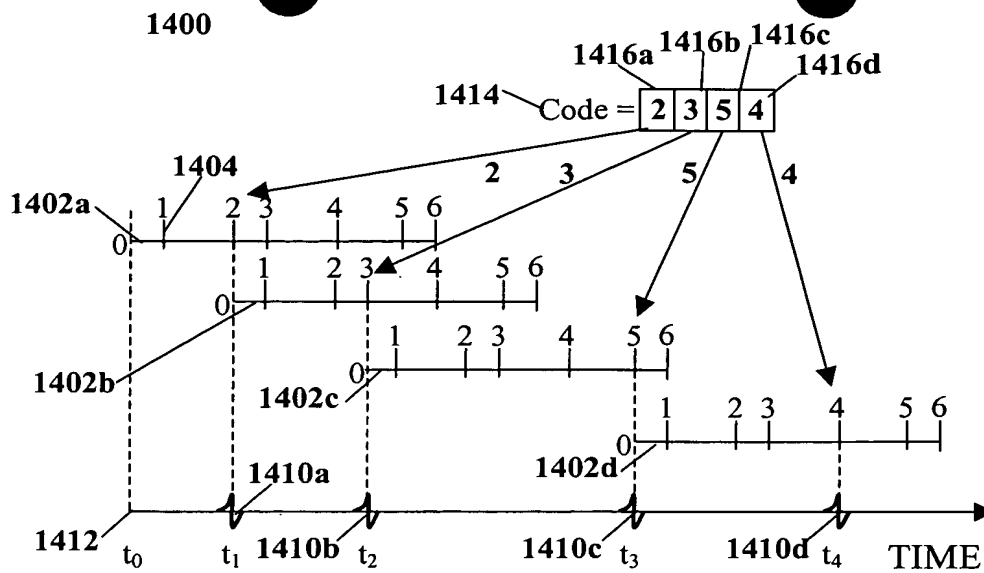


FIGURE 14a

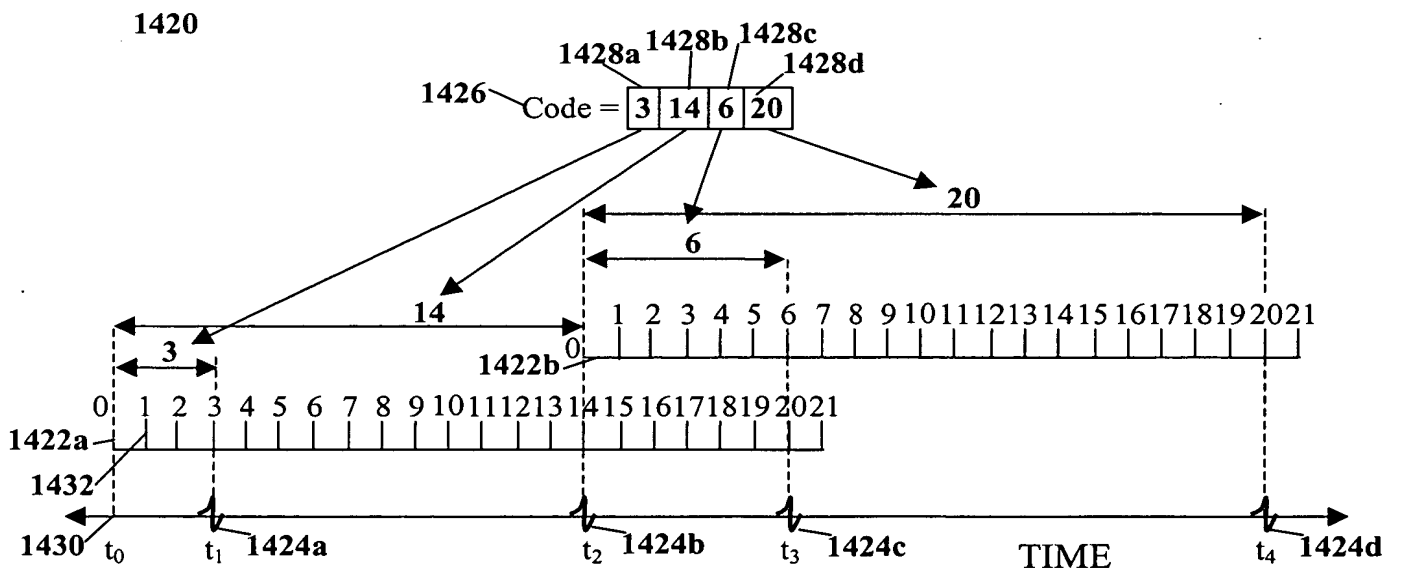


FIGURE 14b

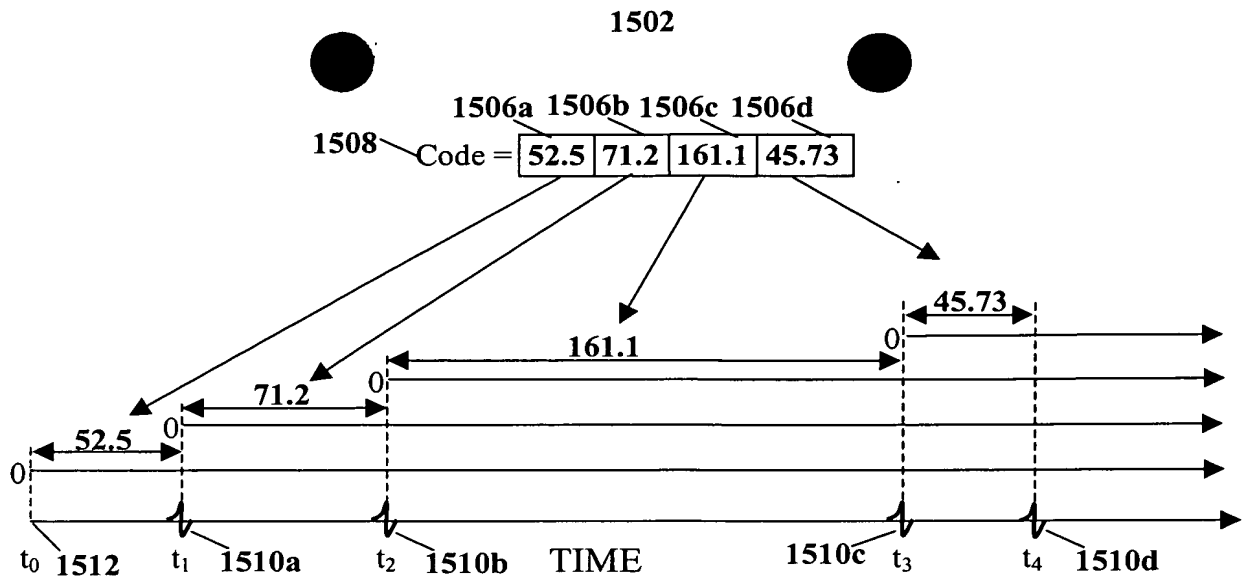


FIGURE 15a

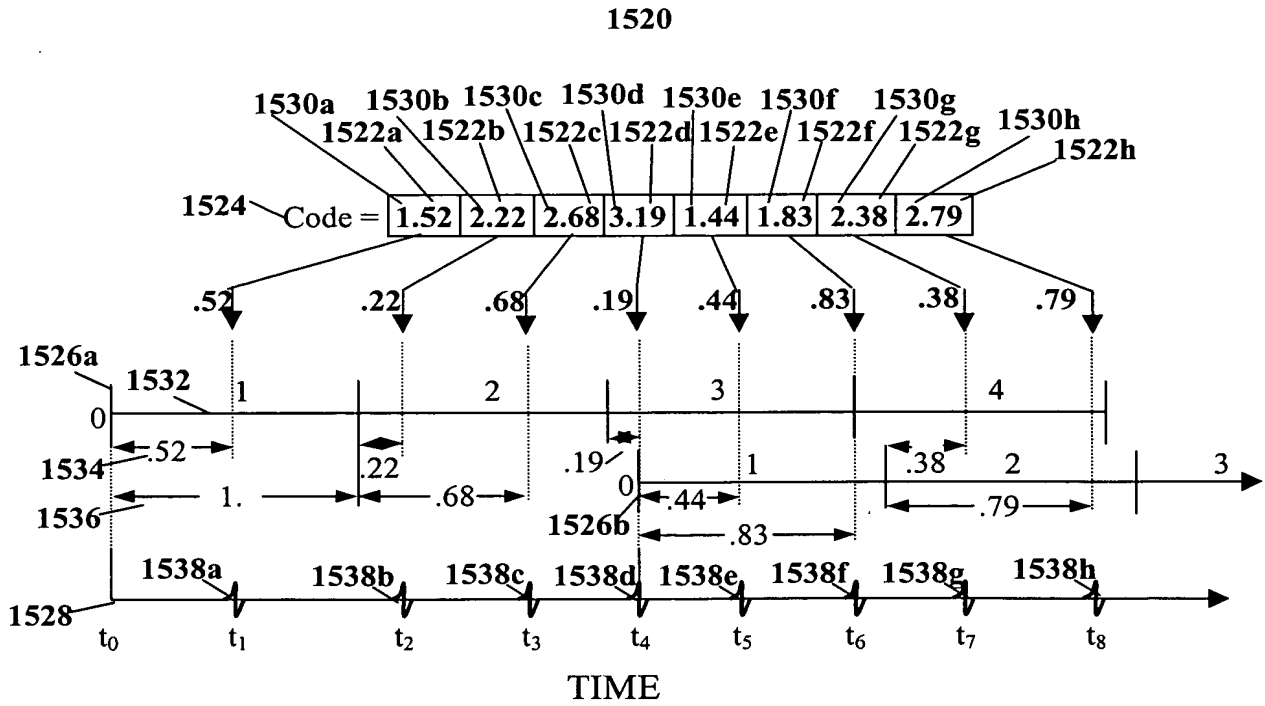


FIGURE 15b

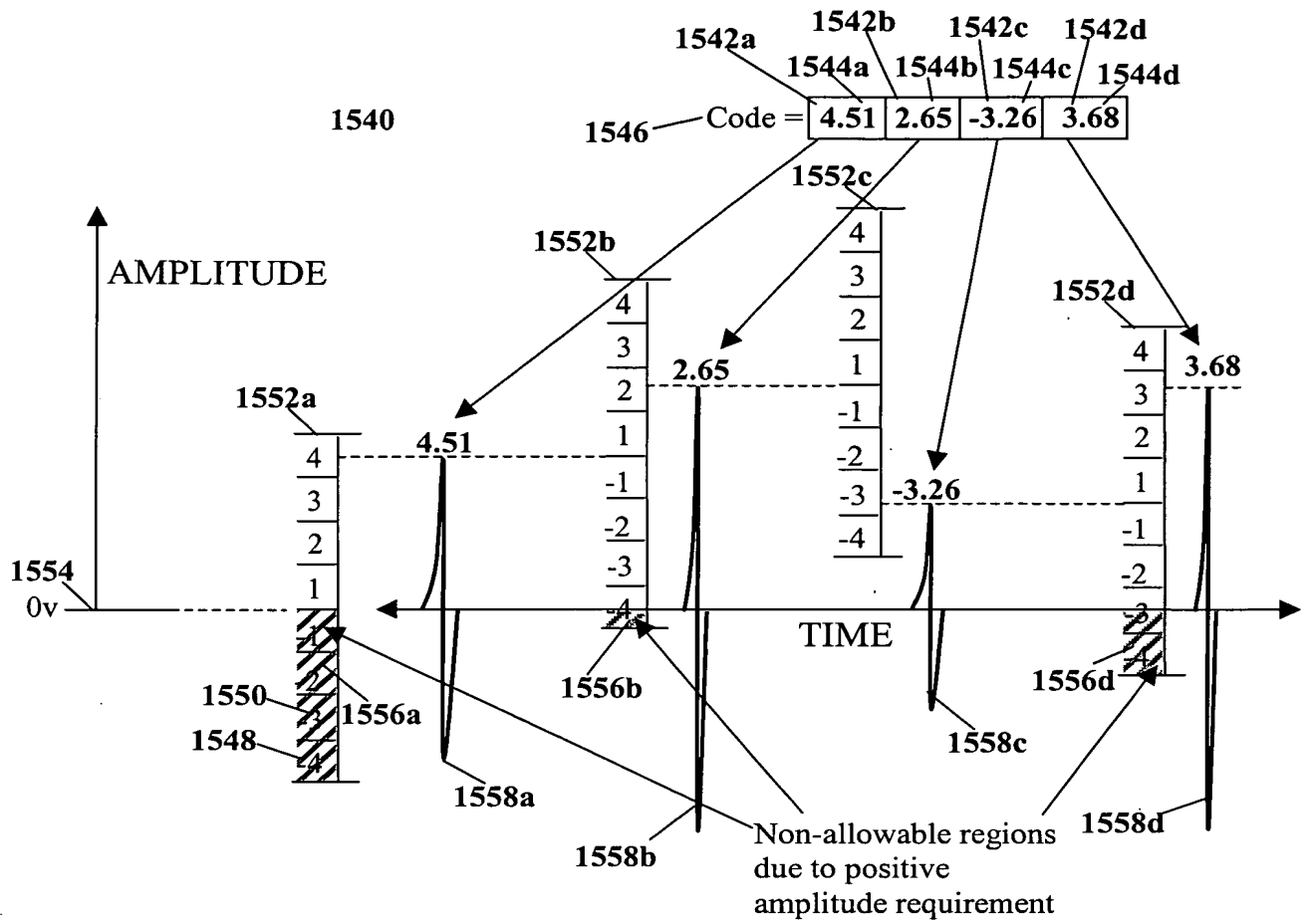


FIGURE 15c

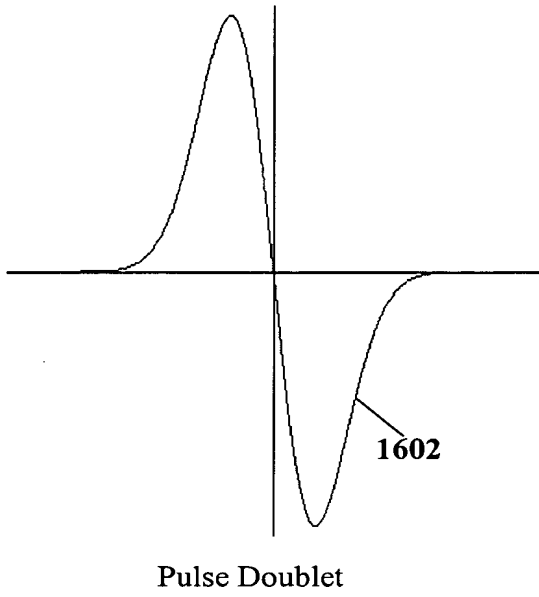


FIGURE 16a

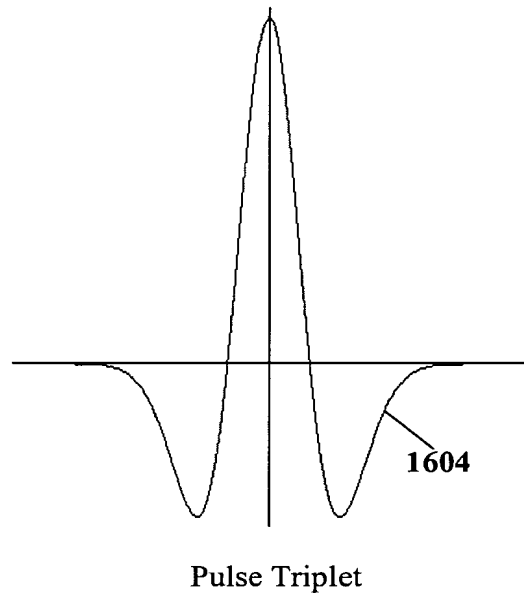


FIGURE 16b

Typical Time-Coded UWB Pulse Trains

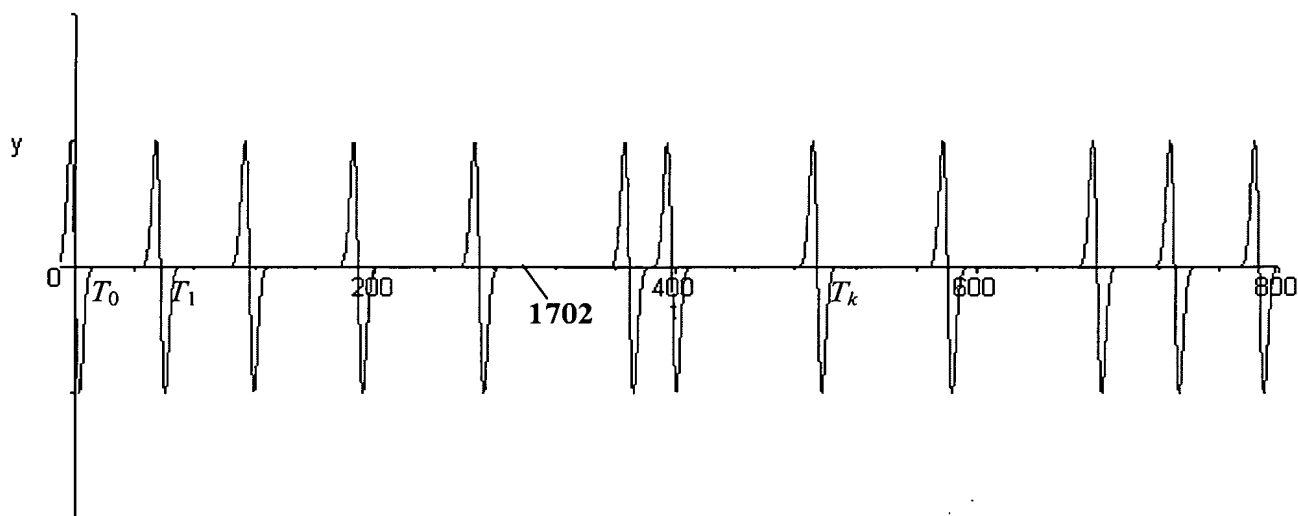


FIGURE 17a

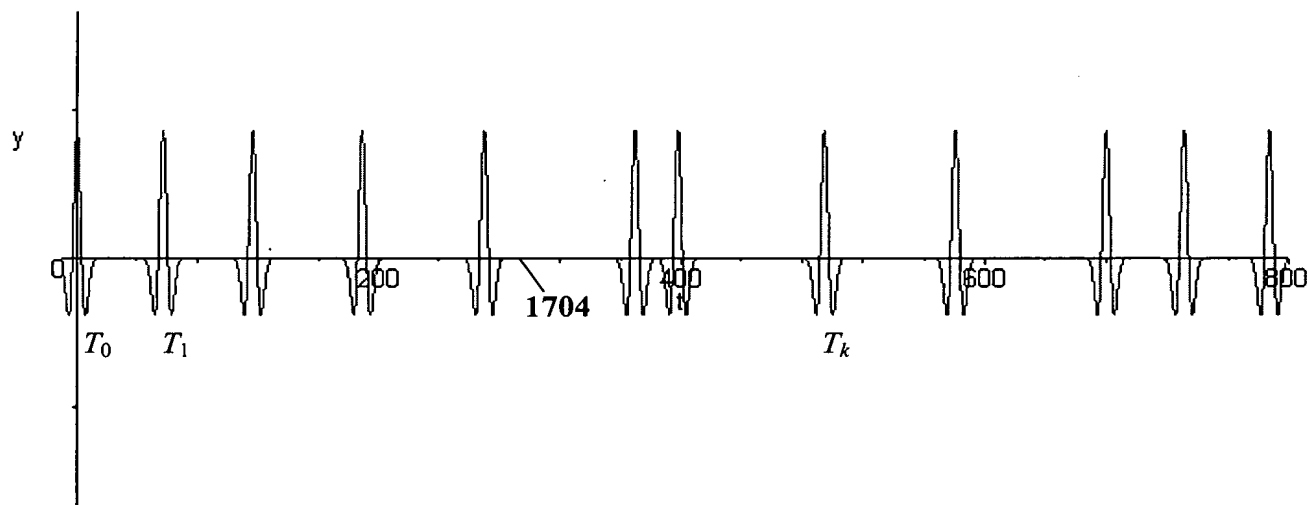


FIGURE 17b

Exponential Probability Density Functions

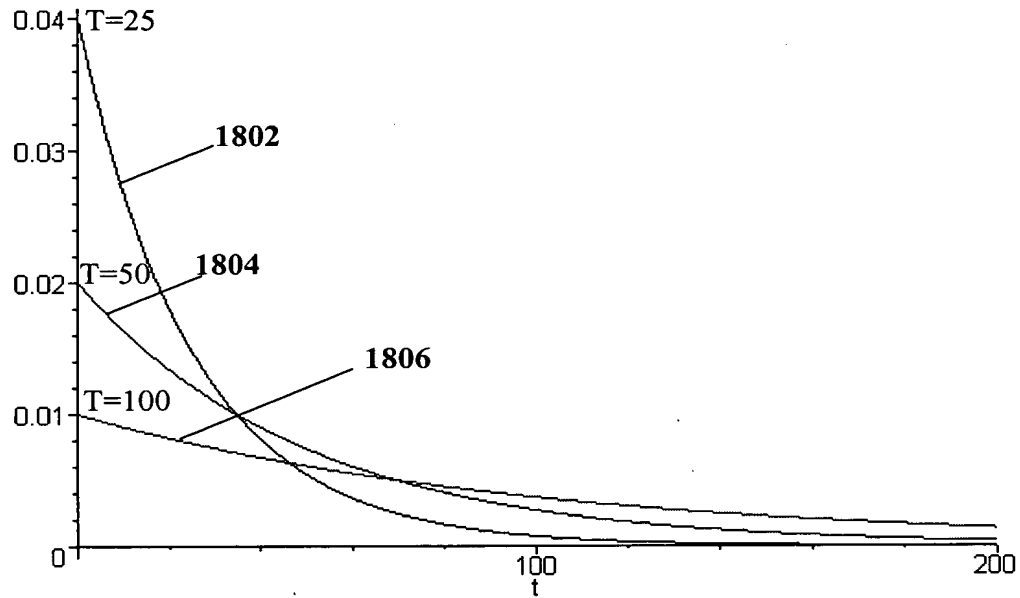


FIGURE 18

005T80" T5T8C960

Expected Poisson Power-Spectral Density

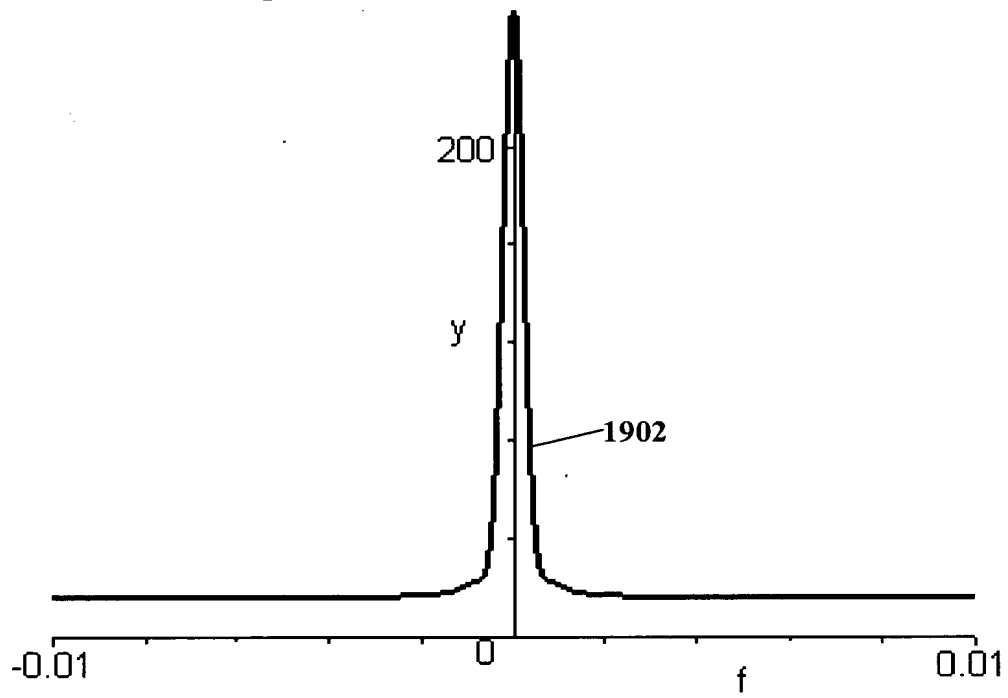


FIGURE 19

005780" TESTE960

Power Spectral Density for a Poisson Code (1 of 3)

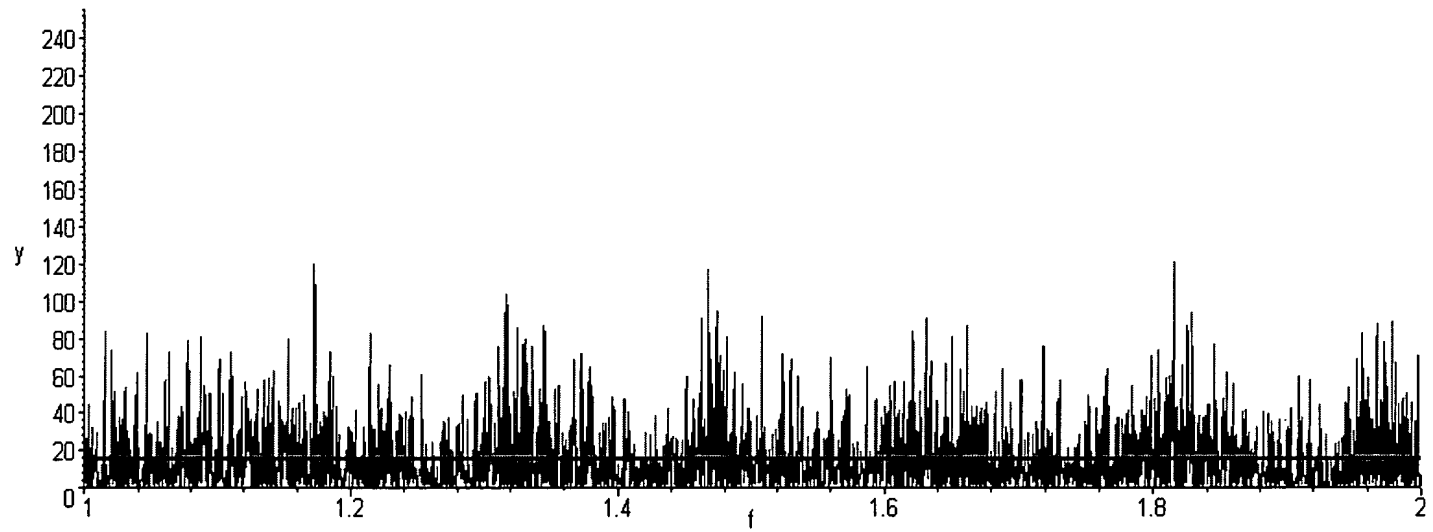
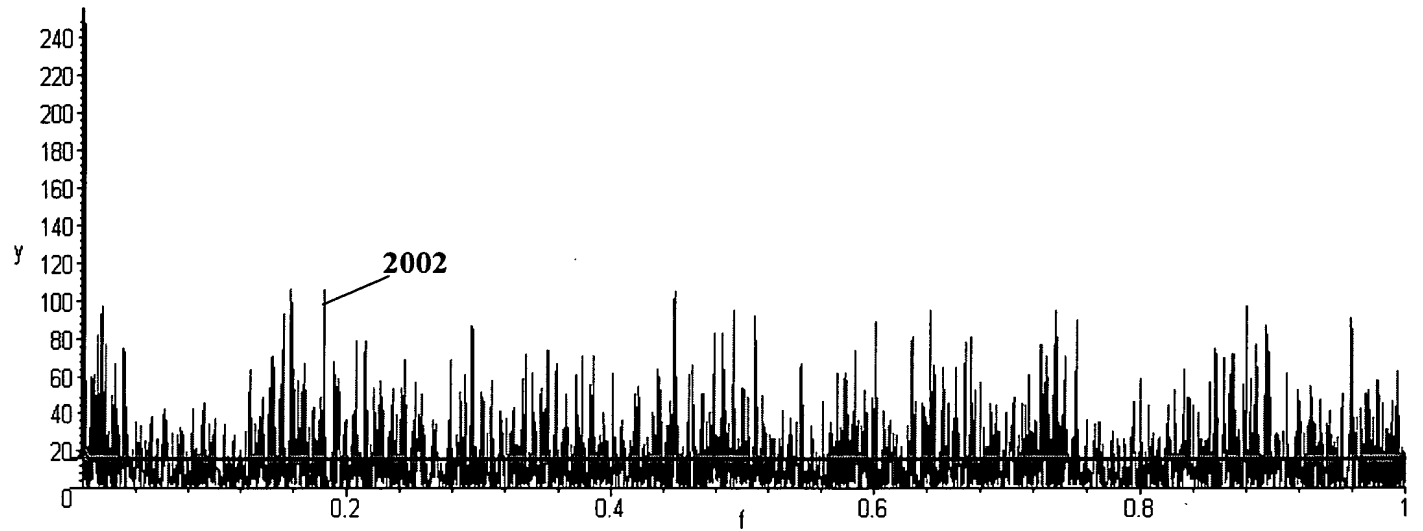


FIGURE 20a

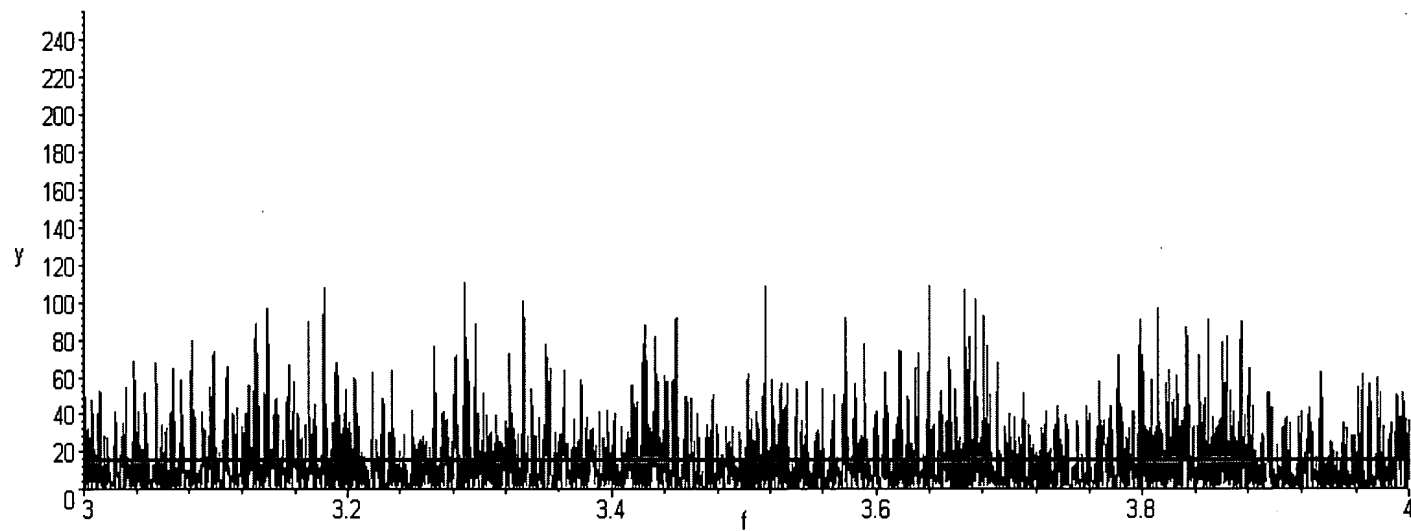
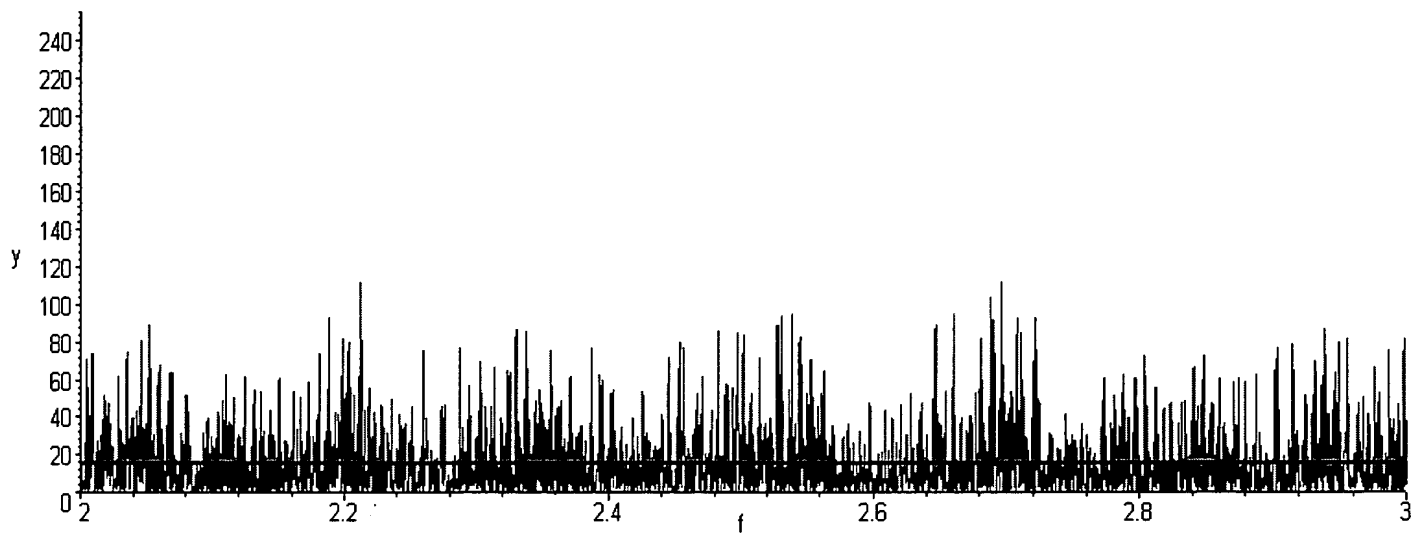


FIGURE 20b

005T80" T5T8E960

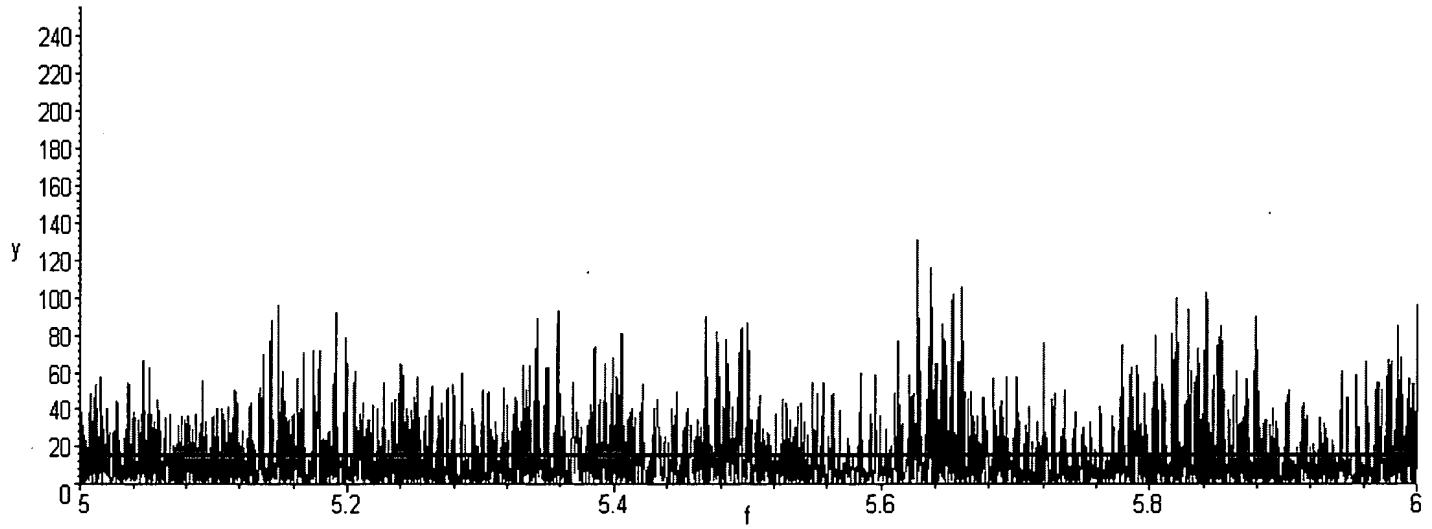
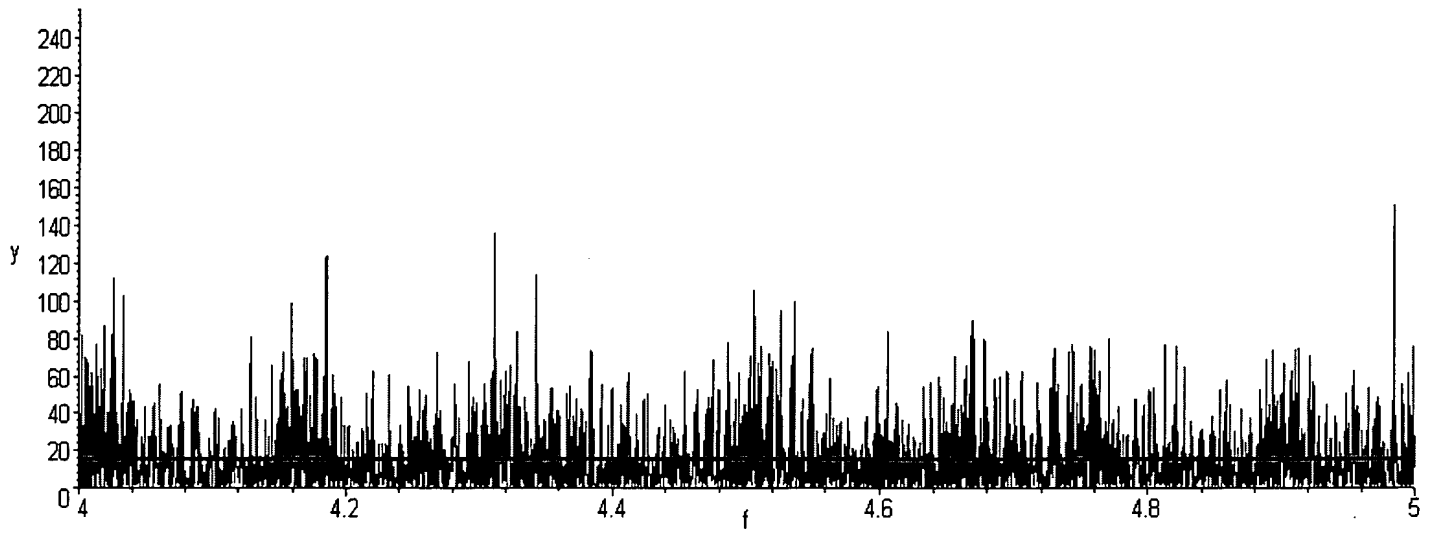


FIGURE 20c

Modified Exponential Probability Density Functions

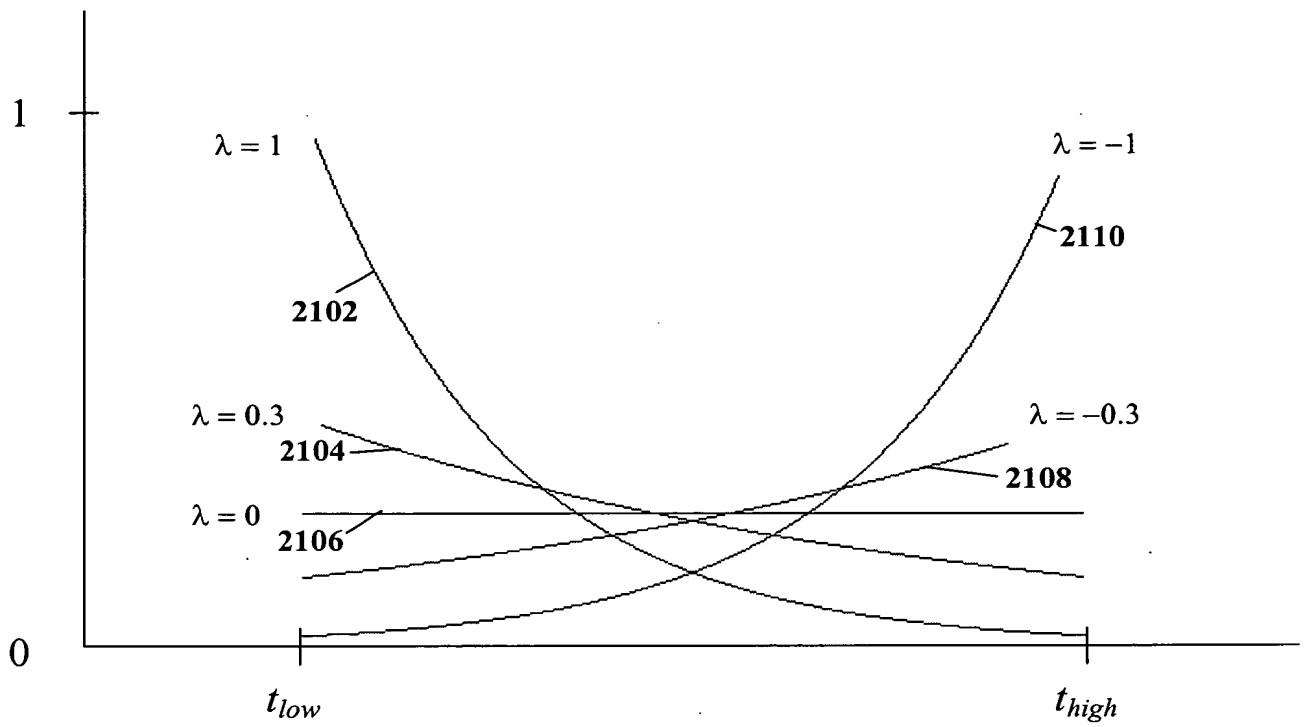


FIGURE 21

Expected Inter-Pulse Time T as a Function of λ

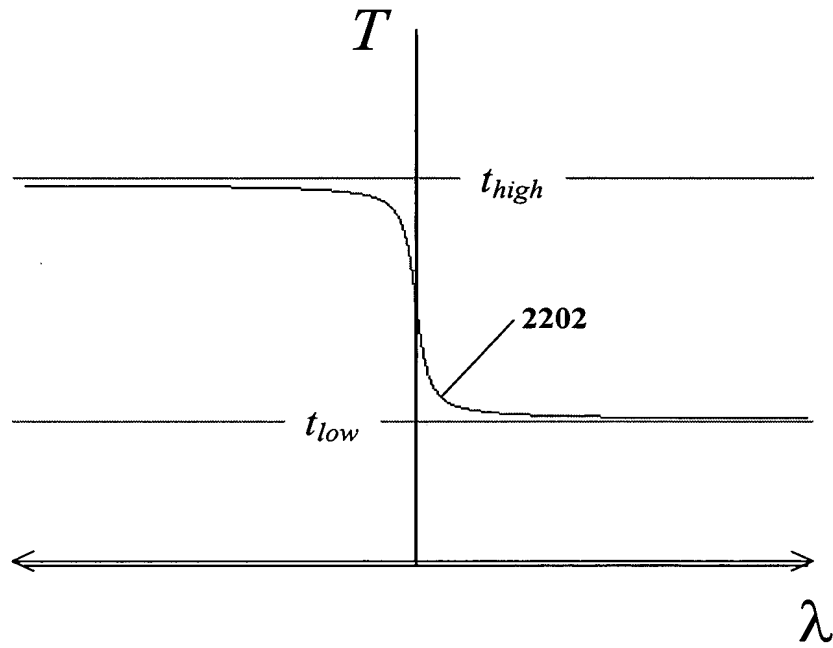


FIGURE 22

005F80" TST80960

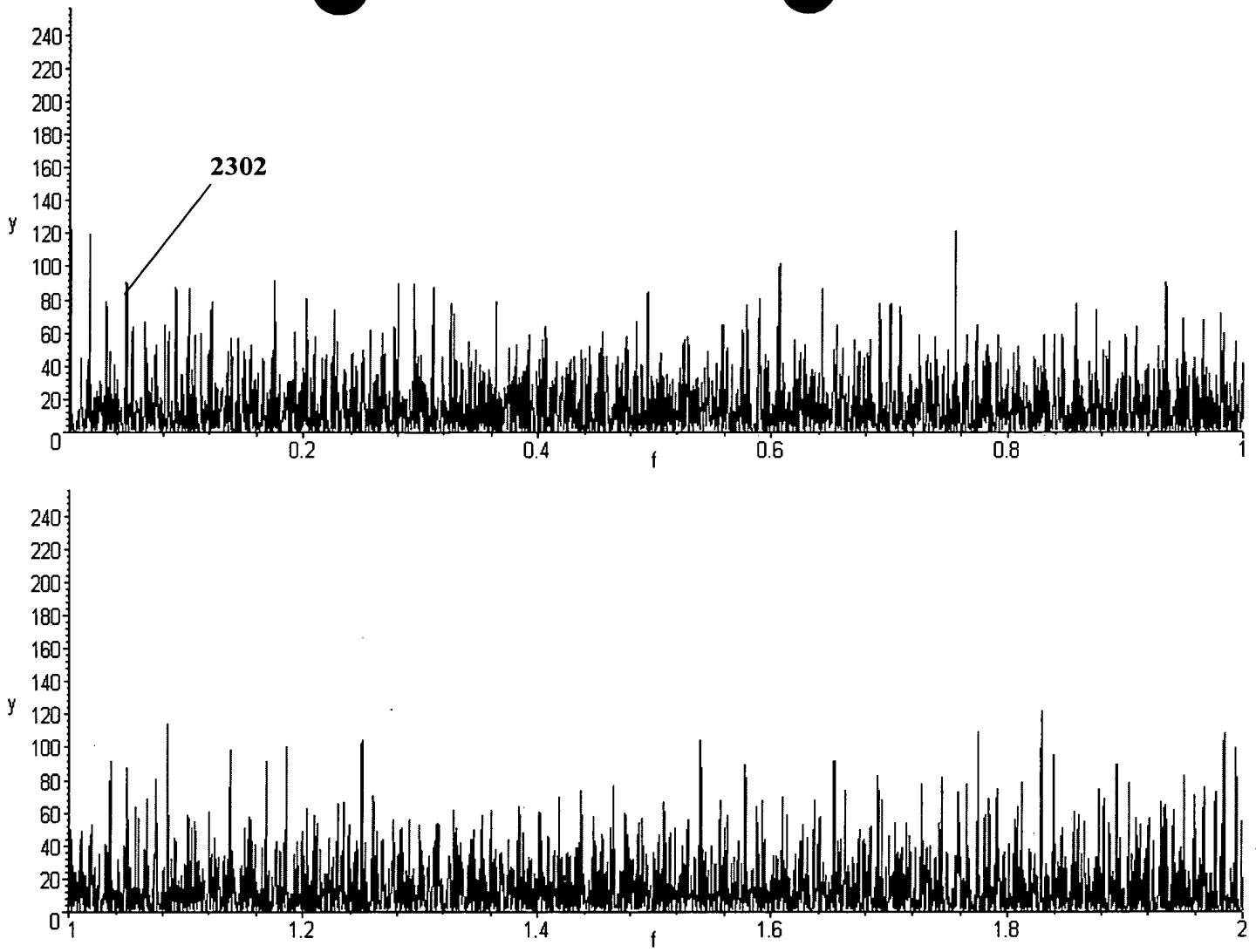


FIGURE 23a

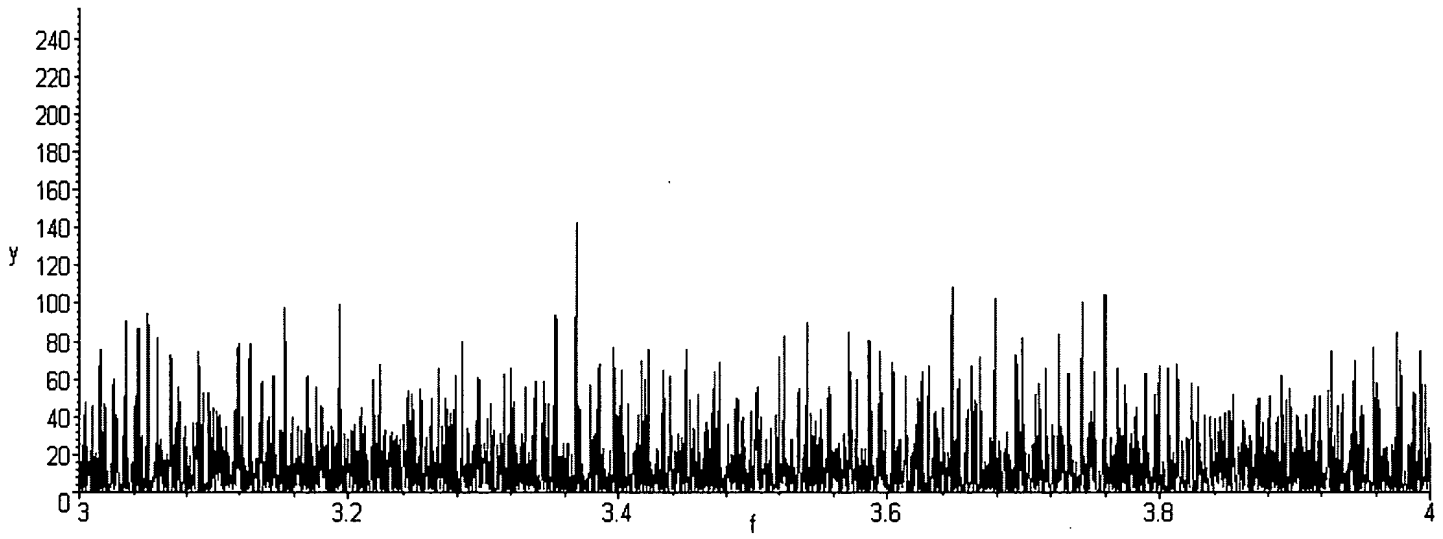
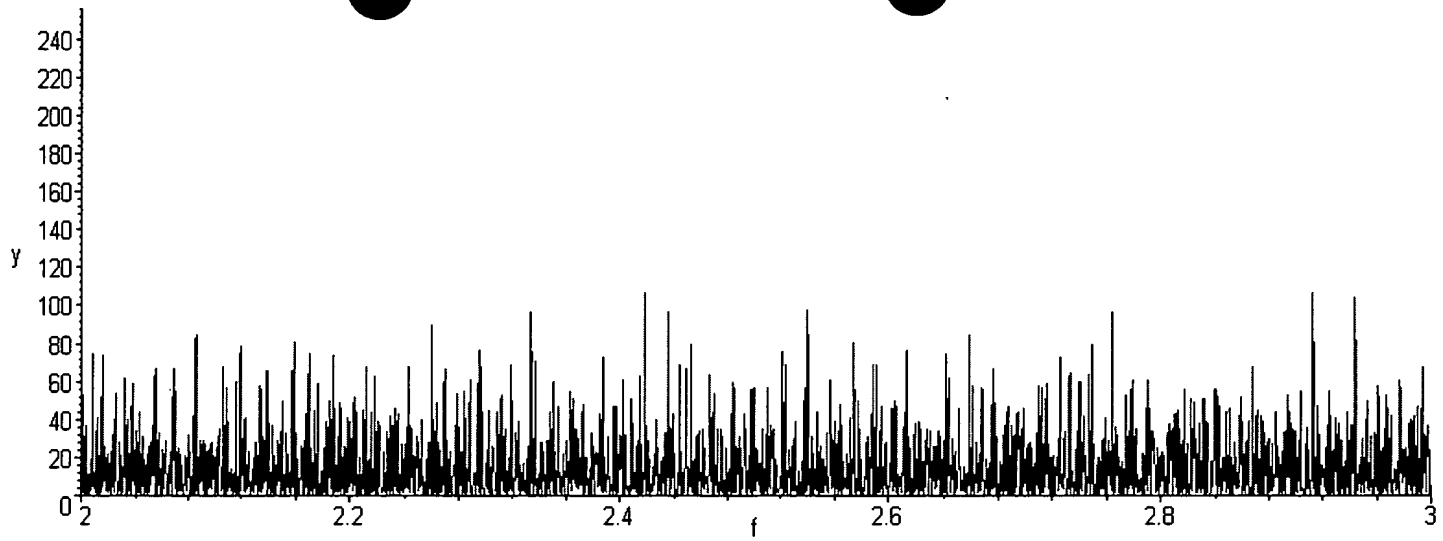


FIGURE 23b

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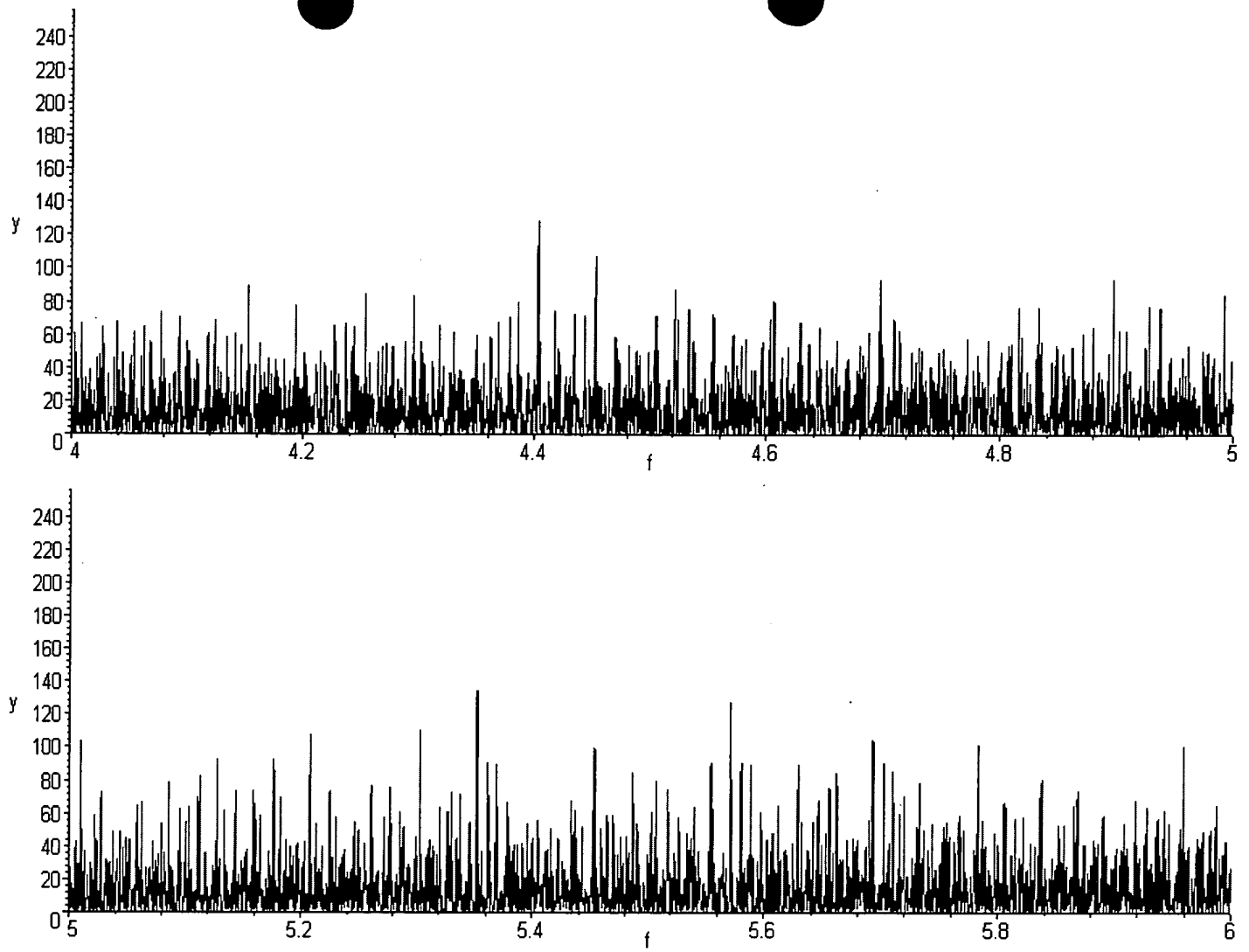


FIGURE 23c

Processing Flow: Poisson Code
Generation Algorithm

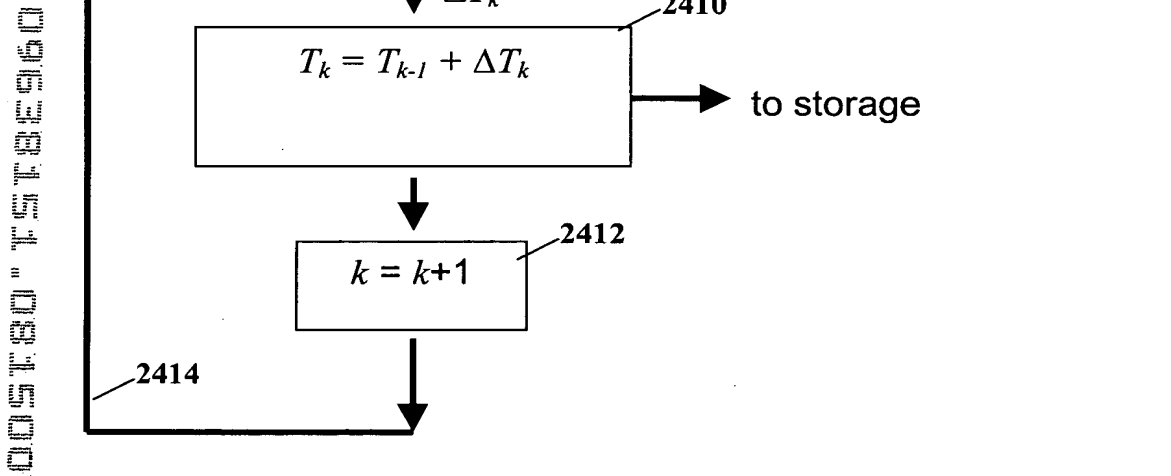


FIGURE 24

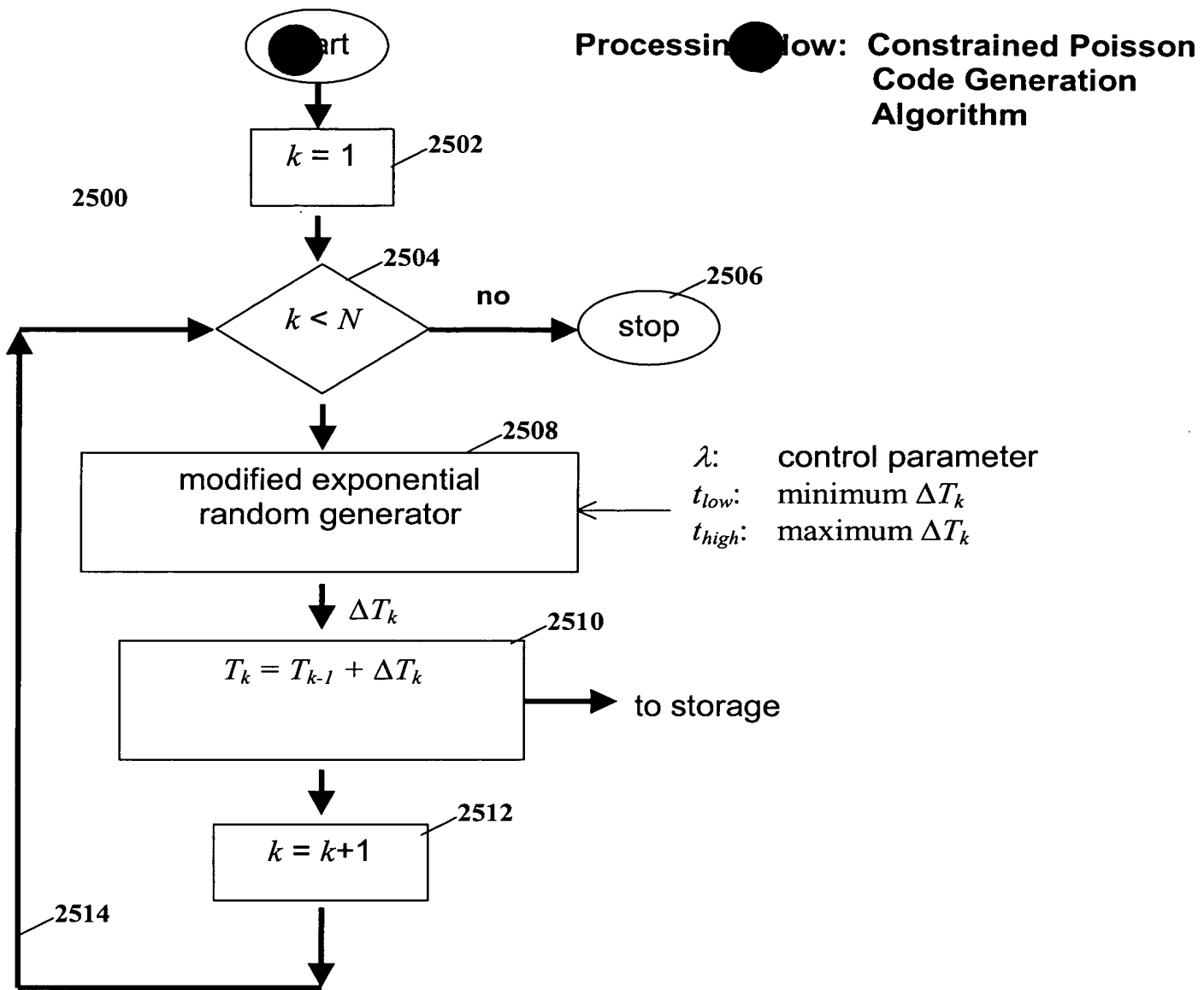


FIGURE 25

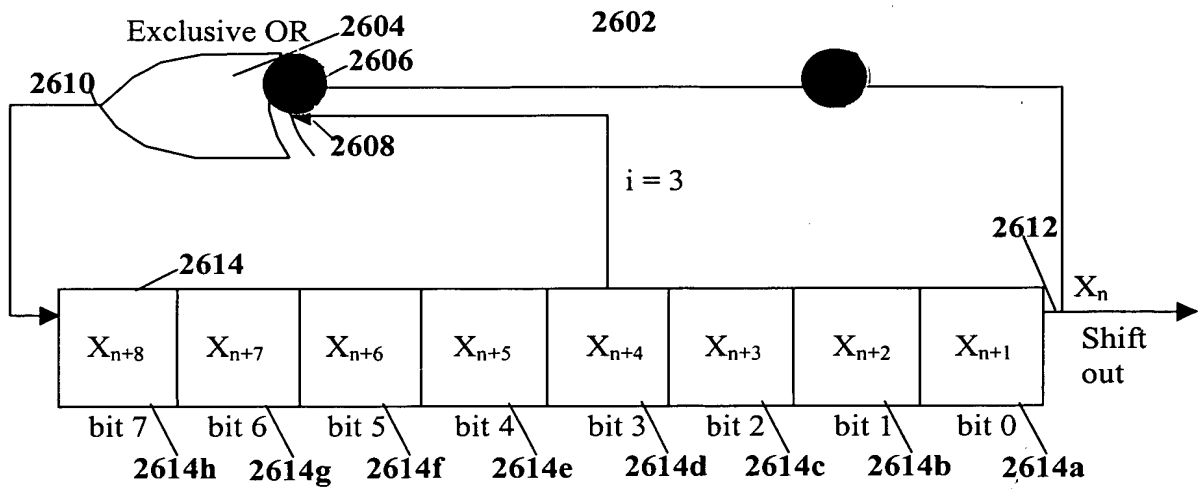


FIGURE 26a. Linear Feedback Shift Register

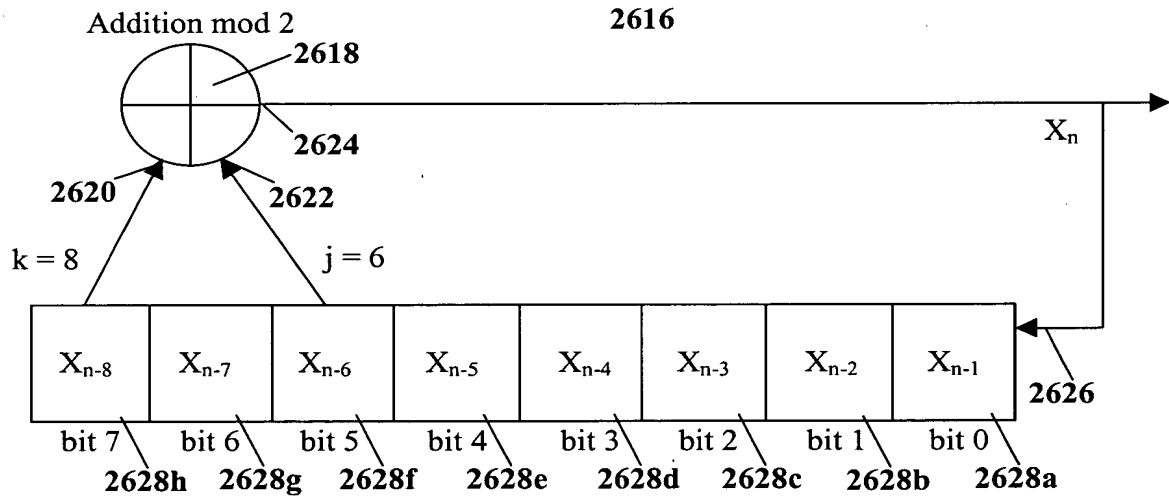


FIGURE 26b. Lagged-Fibonacci Shift Register Generator

Flow Diagram for Sequential Generation of Delta Codes

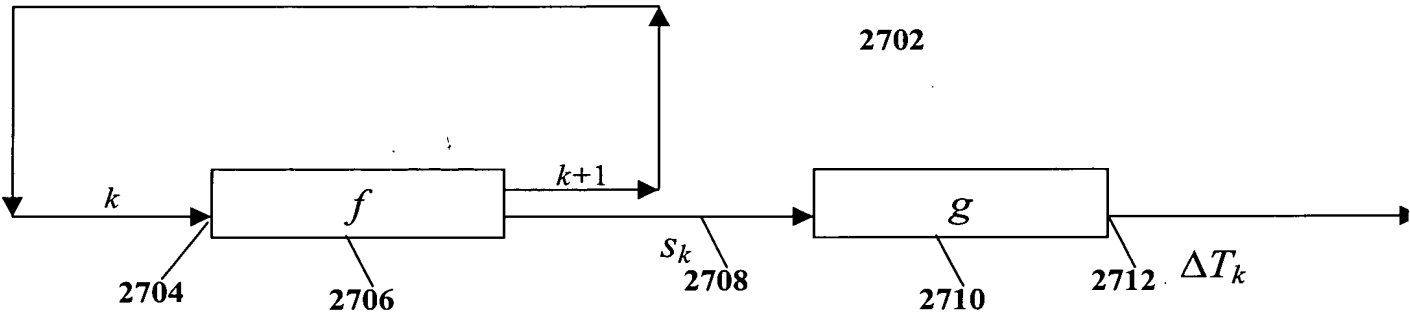


FIGURE 27

Processing Flow of Rational Congruential
Sequential Delta Code
Generation Algorithm

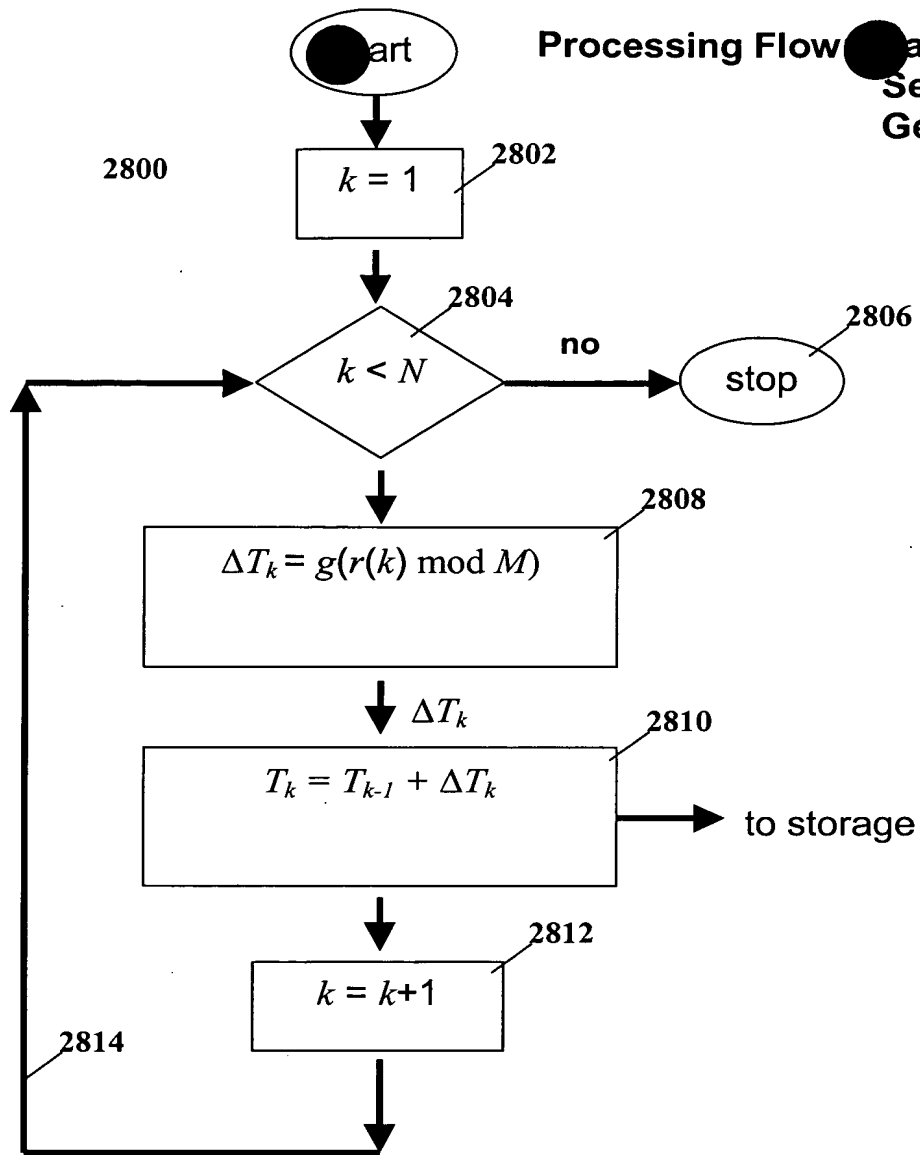


FIGURE 28

Flow Diagram for Iterated Generation of Delta Codes

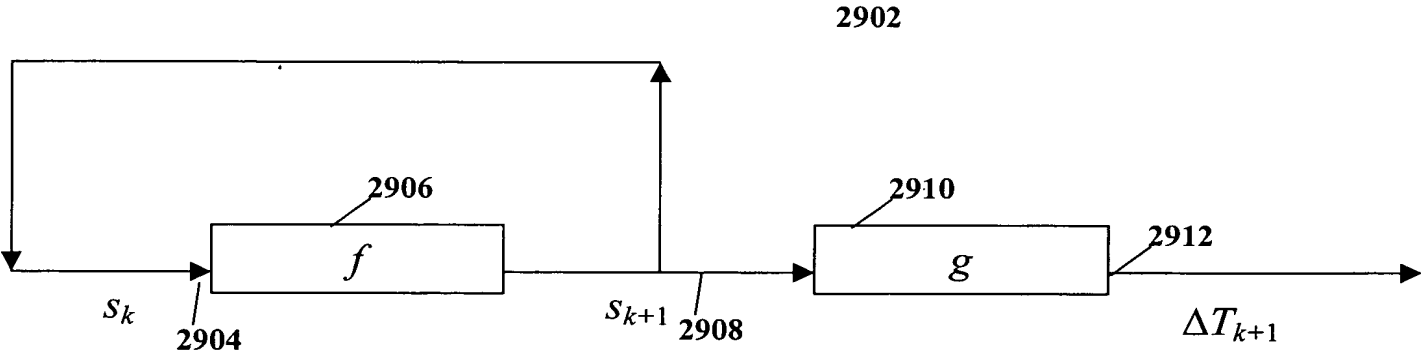


FIGURE 29

005T80" TST8E960

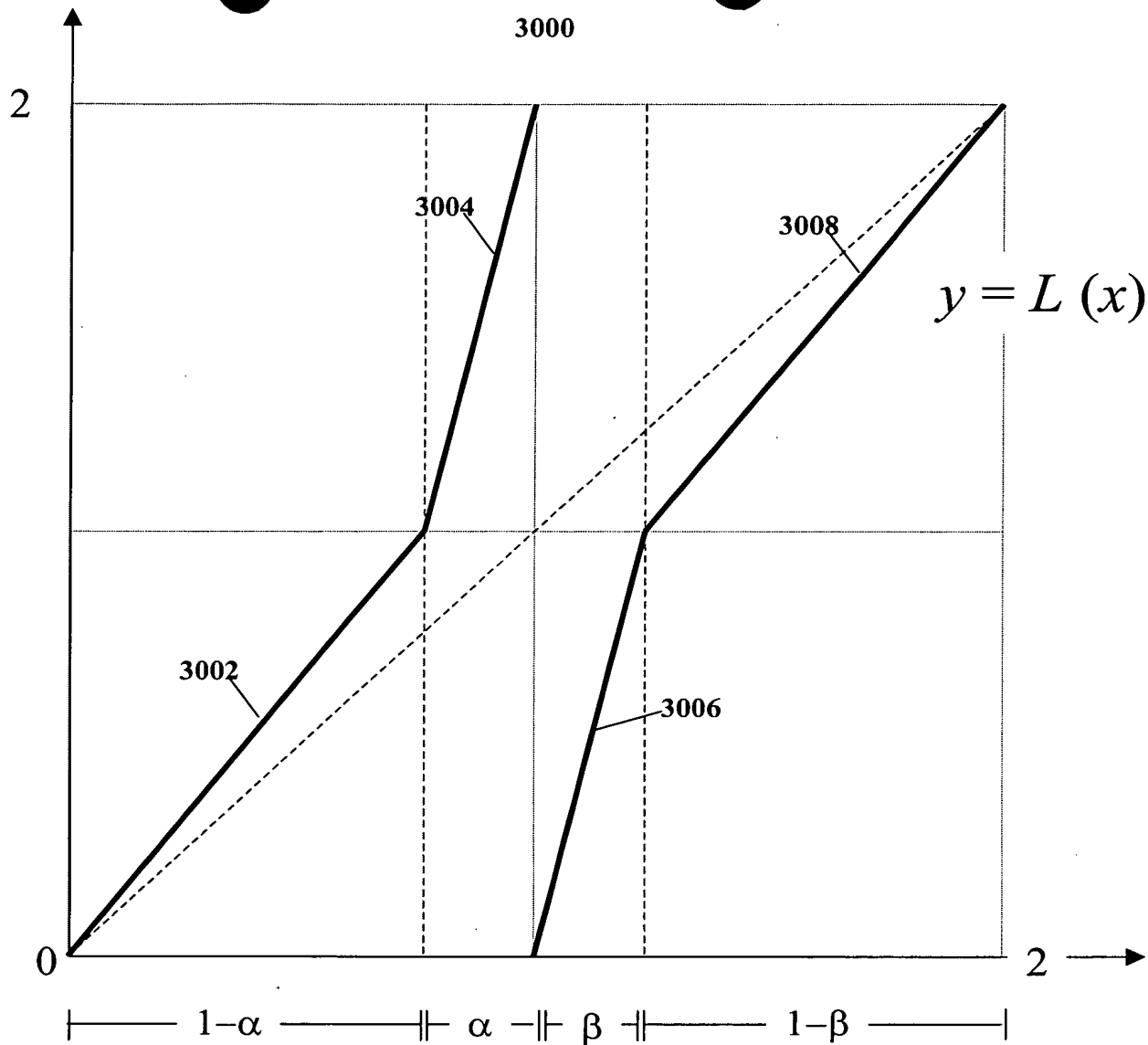


FIGURE 30

Processing Flow: Rational Congruential
Iterative Delta Code
Generation Algorithm

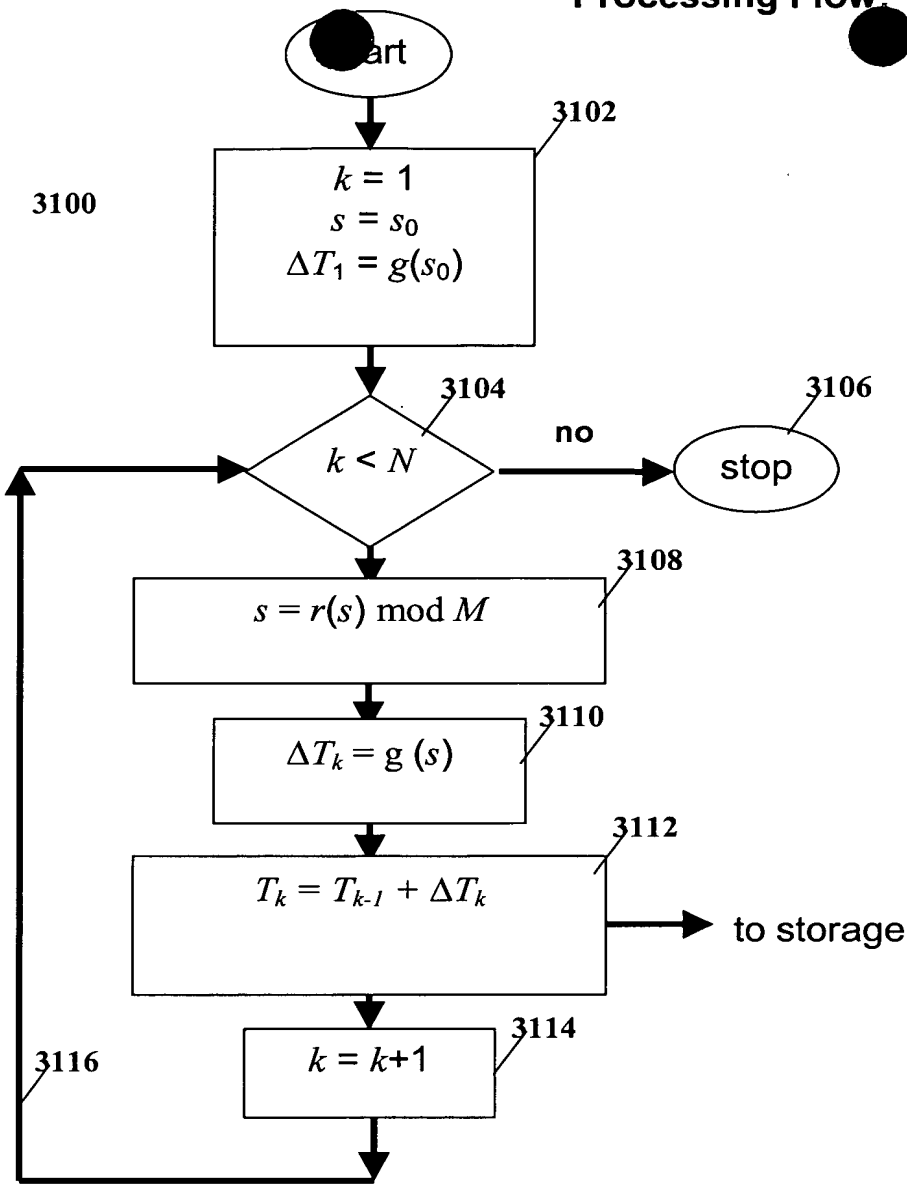


FIGURE 31

Processing Flow: Piecewise Linear Iterative Delta Code Generation Algorithm

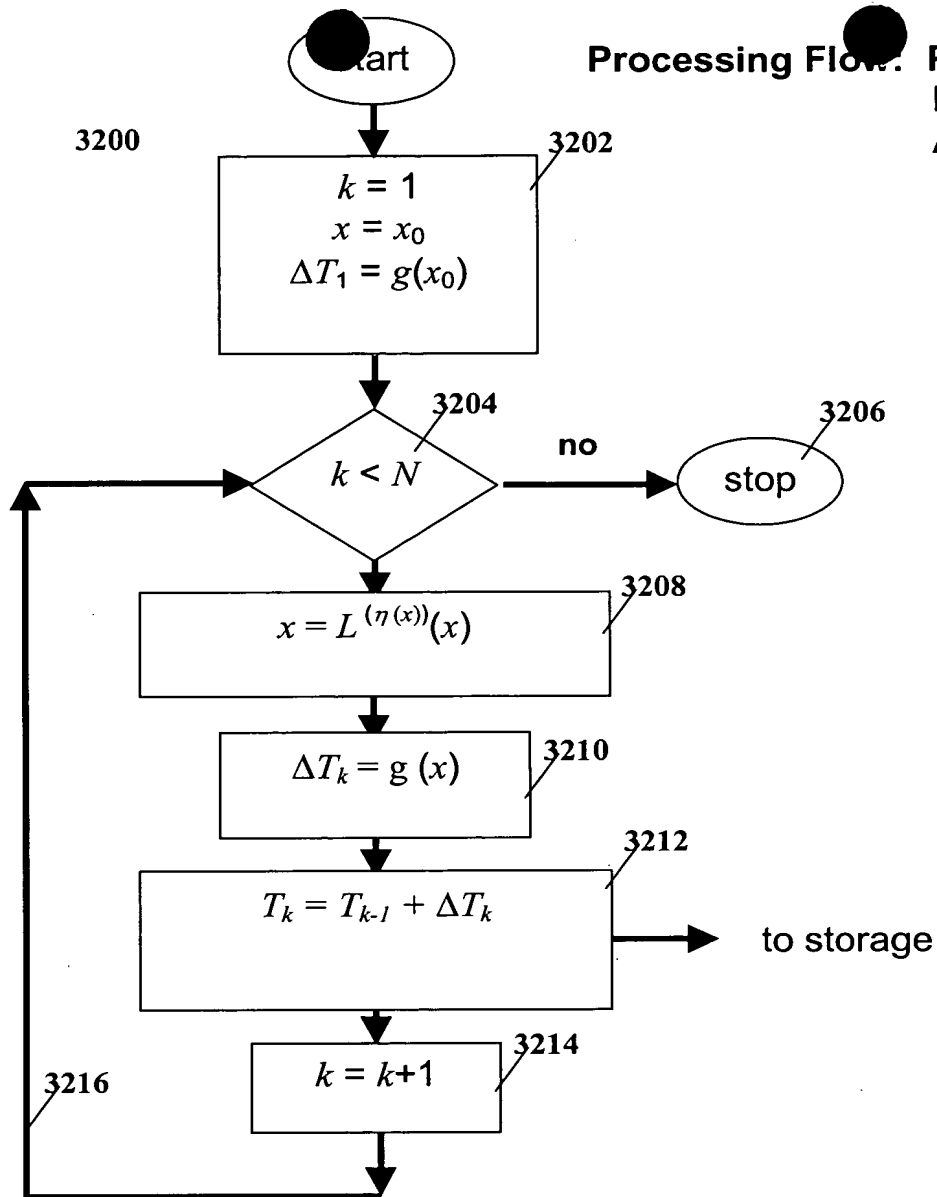


FIGURE 32

09638151.081500

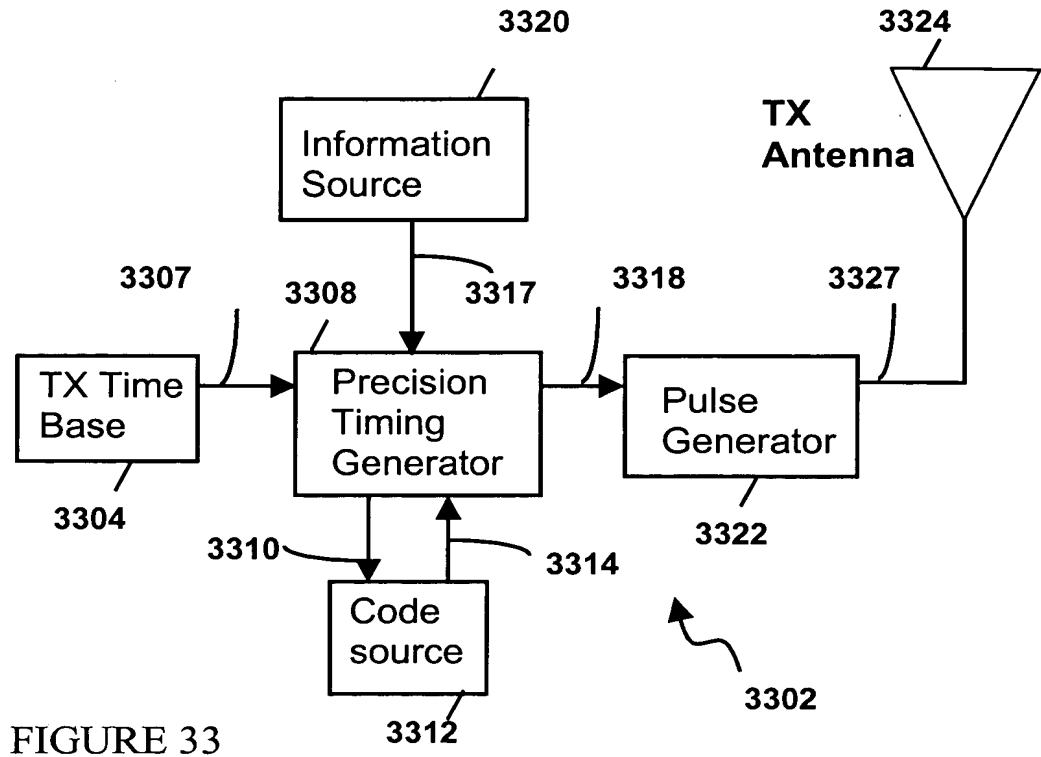


FIGURE 33

005480" TEST 960

